

2021 Southeastern Residency Conference - Virtual

- A** Administration (ADM) **B** Ambulatory Care (AMB) **C** Cardiology (CAR) **Y** Community Pharmacy (CP)
- R** Critical Care/Emergency Medicine (CCM) **G** Geriatrics (GER) **I** Infectious Disease (ID) **L** Internal Medicine (IM)
- M** Medication Safety (MES) **N** Neurology (NEU) **O** Oncology (ONC) **P** Psychiatric Pharmacy (PSY) **S** SERC
- T** Transitional Care (TC) **1** Transplant (TRP)

APRIL 20 • TUESDAY

PINNED 9:00am – 9:15am	S Evaluating Starts 4/21/2021 You can add abstracts to your schedule today, however please remember today is still an editing day for our presenters!! Evaluations do not start until tomorrow morning at 8am!	Room A
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9:45am – 9:50am	A Evaluation of Pharmacy Technician Leadership Training through a National Survey and Focus Group <i>Presenters: Behren Ketchum</i> TITLE: Evaluation of Pharmacy Technician Leadership Training through a National Survey and Focus Group AUTHORS: Behren Ketchum, Benjamin Coles, Linda Logan OBJECTIVE: Describe the current state of training for pharmacy technician leaders and identify the need for additional training or qualifications for leadership roles. SELF ASSESSMENT QUESTION: Certified pharmacy technicians generally feel prepared upon entering a leadership position. True/False BACKGROUND: As new pharmacy practice models deploy pharmacists into direct patient care services, advancement of certified pharmacy technicians (CPhT) is essential. Although avenues exist for CPhT skill-based advancement, opportunities for leadership training are lacking. The objective of this study is to evaluate available and/or received training for CPhT leaders and to determine the need for additional training or qualifications for technicians pursuing leadership roles. METHODOLOGY: Through collaboration with the Pharmacy Technician Certification Board (PTCB), an internet-based survey was emailed to a random sample of 10,000 active CPhTs. A self-selected subset of participants were scheduled for focus groups. Internet survey was analyzed using descriptive statistics. Focus group data will be analyzed through thematic analysis. RESULTS: As 30% of pharmacy technicians hold leadership roles, a 100% response rate from this group would be 3,000 CPhTs. The survey achieved a 15% response rate (N=443) with 75% of respondents completing the survey. Few received formal leadership training prior to (25%) or after (42%) accepting a leadership position. Type of leadership training was often reported as on-the-job training, certifications, life experience, and mentoring, while advanced degrees or leadership seminars/development programs were rare. Despite feeling prepared to enter a leadership role (73%), the majority felt they could benefit from leadership training (80%) and credentialing would motivate them to pursue higher level positions (78%). Focus groups are ongoing. CONCLUSIONS: Survey results indicate a possible lack of accessible leadership training programs. A national training program specific to CPhTs pursuing administrative roles may benefit CPhTs and institutions.	Room G
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B Impact of Clinical Pharmacists on Type 2 Diabetes Mellitus outcomes in the primary care setting before and during the Public Health Emergency surrounding COVID-19.

Room K

Presenters: Chelsea Orvin

TITLE: Impact of Clinical Pharmacists on Type 2 Diabetes Mellitus outcomes in the primary care setting before and during the Public Health Emergency surrounding COVID-19.

AUTHORS: Chelsea Orvin, Caleb Rich, Ashley Woodhouse, Joseph Crosby, Chelsea Keedy

OBJECTIVE: Identify and compare the overall change in T2DM outcomes prior to the pandemic versus during the pandemic.

SELF ASSESSMENT QUESTION: What is one way pharmacists can sustain telephonic visits for disease state management in the ambulatory care setting when Public Health Emergency (PHE) waivers expire?

BACKGROUND: To determine the impact of ambulatory care pharmacists on Type 2 Diabetes Mellitus outcomes prior to and during the COVID-19 pandemic.

METHODOLOGY: A computer-generated list identified patients whose Type 2 Diabetes Mellitus (T2DM) was managed by clinical pharmacists from August 2019 to October 2020. Patient data prior to the pandemic was compared to outcomes during the pandemic, as pharmacists started regularly utilizing Remote Patient Monitoring (RPM) services during the pandemic to lessen in-person visits. Data collected included comorbidities, change in hemoglobin A1C, diabetes medication history and adherence, and statin therapy adherence. Percentage of HEDIS and MIPS measures met and billing code frequencies were also assessed.

RESULTS: There were 91 patients who had their T2DM managed by a clinical pharmacist from August 2019-October 2020 meeting the inclusion criteria of initial A1C > 8%. In the pre-pandemic group, the average 3 and 6 month A1C reduction was 1.3% and 1.2%, respectively. The average 3 and 6 month A1C reduction in the during-pandemic group was 2% and 2.2%, respectively. The percentage of patients appropriately initiated or maintained on a statin in the pre-pandemic group was 96.2% and 82.6 % in the during-pandemic group.

CONCLUSIONS: Data demonstrates the opportunity for pharmacists to maintain and improve clinical outcomes related to T2DM despite the ongoing COVID19 pandemic through implementation of telephonic monitoring. While services such as Remote Patient Monitoring (RPM) were able to be utilized by pharmacists prior to the Public Health Emergency (PHE), the pandemic presents an ongoing need to explore opportunities for practice sustainment.

C Prophylactic Enoxaparin Dosing Regimen in Morbidly Obese Patients

Room E

Presenters: Rachel Rusk

TITLE: Prophylactic Enoxaparin Dosing Regimen in Morbidly Obese Patients

AUTHORS: Rachel Rusk, William Guynn, Joshua Settle

OBJECTIVE: Identify a potential dosing regimen for an obese patient that requires venous thromboembolism prophylaxis with enoxaparin.

SELF ASSESSMENT QUESTION: What is the goal anti-Xa level for an obese patient for prophylactic enoxaparin dosing?

BACKGROUND: Enoxaparin is standard therapy for venous thromboembolism (VTE) prophylaxis in hospitalized patients. Enoxaparin's distribution is weight-based, which may increase VTE risk in obese patients using standard regimens. The literature suggests a twice daily regimen of enoxaparin in patients with a body mass index (BMI) greater than or equal to 40kg/m². The purpose of this study is to implement and assess a twice daily dosing regimen for enoxaparin prophylaxis in patients with a BMI greater than or equal to 40kg/m².

METHODOLOGY: Patients included were 19 years of age or older, had a BMI of 40kg/m² or greater, and received enoxaparin for VTE prophylaxis. Creatinine clearance was 30mL/min or greater. Patients were excluded if they were pregnant or had contraindications to enoxaparin. The dose was adjusted to enoxaparin 40mg twice daily if the BMI was greater than or equal to 40kg/m². Peak anti-factor Xa levels were measured four to six hours after the third dose. The dose was increased or decreased by 10 mg for subtherapeutic and suprathereapeutic levels respectively.

RESULTS: Sixty five patients were included in this study. Seventy five percent of patients had a therapeutic initial anti-xa level. There were 4 occurrences of suprathereapeutic initial levels and 10 occurrences of subtherapeutic initial levels. There were two occurrences of bleeding (hematuria & minor epistaxis) and 4 patients required transition to treatment dose enoxaparin: COVID-19, new onset atrial fibrillation, probable pulmonary embolism, and internal jugular vein thrombosis. Twelve other patients were excluded from the study due to being discharged prior to follow up.

CONCLUSIONS: A majority of the patients enrolled in this study had a therapeutic initial anti-xa level, with little evidence of bleeding or thrombosis. This demonstrates that the proposed regimen is a safe and effective method for dosing prophylactic enoxaparin in this patient population.

Video presentation link: <https://vimeo.com/539220929>

R EVALUATION OF PROTON-PUMP INHIBITOR (PPI) DOSING FOR GASTROINTESTINAL BLEED (GIB) PROPHYLAXIS IN EXTRACORPOREAL MEMBRANE OXYGENATION

Room B

Presenters: Racheal Bailey

TITLE: EVALUATION OF PROTON-PUMP INHIBITOR (PPI) DOSING FOR GASTROINTESTINAL BLEED (GIB) PROPHYLAXIS IN EXTRACORPOREAL MEMBRANE OXYGENATION

AUTHORS: Racheal Bailey; Jeannie Watson; Matt Bibb

OBJECTIVE: Describe differences between GIB prophylaxis modality in ECMO patients.

SELF ASSESSMENT QUESTION: Does twice daily PPI dosing decrease the rate of GIB in patients undergoing ECMO?

BACKGROUND: Bleeding is the most frequent and serious complication associated with ECMO. GIB has been identified in approximately 8% of ECMO patients at time of death. There are no current guidelines that comment on GIB prophylaxis specifically in ECMO patients. The purpose of this study is to evaluate the efficacy of PPIs for the prevention of GIB in patients undergoing ECMO.

METHODOLOGY: This study is a retrospective chart review of adult patients who were on ECMO between January 1, 2019 and July 31, 2020. This study includes a single center (ASTW). Data will be analyzed to assess differences in PPI dosing and GIB. Secondary outcomes include the rate of GIB and mortality.

RESULTS: 76 patients were included in this study with 47 patients receiving pantoprazole twice daily. 5 patients had a GIB while on ECMO therapy, 6.6%, with 4 GIBs occurring in the pantoprazole BID group. Patients in the pantoprazole twice daily group were on ECMO significantly longer ($p=0.006$) than all other patients. Overall mortality was 50% in the ECMO population.

CONCLUSIONS: There was no significant difference in GIB between pantoprazole BID and the other modes of prophylaxis. In ECMO patients at ASTW, incidence of GIB at was 6.6% and mortality was 50%. The majority of GIBs were in the pantoprazole twice daily group; this was not statistically significant. The pantoprazole BID group made up the majority of the study population (61.8%) and was on ECMO significantly longer than the rest of the population. Further research is needed to determine the best mode of GIB prophylaxis in ECMO patients.

R Impact of Anticoagulation Targets on Bleeding in Venovenous Extracorporeal Membrane Oxygenation

Room C

Presenters: Jessica Cercone

TITLE: Impact of Anticoagulation Targets on Bleeding in Venovenous Extracorporeal Membrane Oxygenation

AUTHORS: Jessica Cercone, Shawn Kram, Morgan Trammel, Craig Rackley, Hui-Jie Lee, James Merchant Jr., Bridgette Kram

OBJECTIVE: To describe the impact of different anticoagulation targets on bleeding complications in patients receiving venovenous extracorporeal membrane oxygenation (VV-ECMO) for acute respiratory distress syndrome (ARDS)

SELF ASSESSMENT QUESTION: Which of the following laboratory parameters may be used to monitor anticoagulation in ECMO patients?

- a. Anti Xa levels
- b. Activated clotting time (ACT)
- c. Activated partial thromboplastin time (aPTT)
- d. All of the above**

BACKGROUND: The risk of bleeding and thrombotic complications must be balanced when administering systemic anticoagulation to patients receiving ECMO. Due to lack of data supporting standardized anticoagulant monitoring, therapeutic targets may vary across institutions.

METHODOLOGY: This retrospective, single center, observational cohort study included patients 18 years and older who received VV-ECMO for ARDS from September 2013 to December 2019. Included patients received continuous infusion heparin and had at least two aPTTs resulted during heparin therapy. Patients were placed into three treatment groups based on the time of index cannulation: aPTT < 50 sec, aPTT 40-50 sec, or No Protocol group.

RESULTS: A total of 136 patients were included. There was no statistically significant difference in rates of bleeding between the three groups (26.7% vs. 34% vs. 39.3, $p=0.50$). The difference in bleeding events between groups was primarily due to a difference in the receipt of a blood transfusion. The no protocol group required a slightly increased median number of units of packed red blood cells than the < 50 and 40-50 sec groups (3 vs. 2 vs. 0.5, respectively). The percentage of aPTT values above goal was similar between groups. Rates of thrombotic events were comparable between the three groups.

CONCLUSIONS: Anticoagulation protocols targeting an aPTT of < 50 or 40-50 sec may be a safe and reasonable strategy for patients receiving VV ECMO for ARDS.

I ANALYSIS OF THE EFFECTS OF PERIOPERATIVE CULTURE OBTAINMENT ON CLINICAL OUTCOMES OF PATIENTS WITH INTRA-ABDOMINAL SOURCES OF INFECTION

Room I

Presenters: Matthew Laws

TITLE: ANALYSIS OF THE EFFECTS OF PERIOPERATIVE CULTURE OBTAINMENT ON CLINICAL OUTCOMES OF PATIENTS WITH INTRA-ABDOMINAL SOURCES OF INFECTION

AUTHORS: Matthew Laws, Sage Greenlee, Wes Wilkerson, Darrell Childress, Chris Harrison

OBJECTIVE: Describe the effect of perioperative culture obtainment on patients with a complicated intra-abdominal infection undergoing surgical intervention.

SELF ASSESSMENT QUESTION: Do perioperative cultures improve post-surgery outcomes in patients being treated for a complicated intra-abdominal infection?

BACKGROUND: Current guidelines for the treatment of complicated intra-abdominal infections recommend using pathogen directed antimicrobial therapy guided by perioperative cultures. The purpose of this study was to investigate outcomes in patients undergoing surgical intervention for an intra-abdominal infection based upon the obtainment of perioperative cultures.

METHODOLOGY: This IRB approved retrospective cohort evaluated patients diagnosed with a complicated intra-abdominal infection requiring surgical intervention between January 1, 2017 to December 31, 2019. Patients 19 – 75 years of age who were diagnosed with a complicated intra-abdominal infection requiring surgical intervention were included. The primary outcome was a composite of ≥ 10 -day length of stay, 30-day readmission, or mortality. Secondary outcomes included duration of antimicrobials, time to appropriate antimicrobials, incidence of de-escalation/escalation of antimicrobials, and composite length of stay.

RESULTS: A total of 186 patients met inclusion criteria, and 46 of the included patients had perioperative cultures obtained. The composite primary outcome revealed 36 (78.3%) patients in the culture group and 84 patients (60%) in the no culture group ($p=0.032$). In regard to secondary outcomes, the no culture group had a longer average length of stay compared to the culture group, 16.92 days vs. 13.57days ($p=0.063$). The average duration of antimicrobial therapy was found to be longer in the culture group (14.71 days) than in the no culture group (10.15 days) ($p=0.002$). Appropriate escalation/de-escalation occurred in 43% of cases, and the average time to appropriate antimicrobial initiation was 95.7 hours.

CONCLUSIONS: Patients in whom perioperative cultures were obtained during surgical intervention for a complicated intra-abdominal infection were found to have a higher likelihood of the primary composite outcome as well as longer courses of antimicrobials.

LINK TO SLIDES: https://drive.google.com/drive/folders/1-i2K8NZNRdhd_IR2sigCrLqkJ7j8lgU?usp=sharing

I Evaluation of antibiotic use in patients with gram positive bacteremia after implementation of a rapid diagnostic blood culture panel with pharmacist review

Room J

Presenters: Thomas Sessoms

TITLE: Evaluation of antibiotic use in patients with gram positive bacteremia after implementation of a rapid diagnostic blood culture panel with pharmacist review

AUTHORS: Thomas Sessoms, Toni Pate, Thomas Brown, Serina Tart

OBJECTIVE: At the conclusion of the presentation, the participant will be able to identify the benefits of BCID-2™ testing in patients with gram positive bacteremias.

SELF ASSESSMENT QUESTION: Which of the following are potential benefits of rapid diagnostic BCID-2™ testing for gram positive bacteremia? (select all that apply)

BACKGROUND: Molecular rapid diagnostic testing for blood stream infections can quickly identify organisms and reduce time to appropriate treatment. The purpose of this study is to evaluate the impact on the time to targeted therapy in patients with gram positive bacteremias after implementation of a blood culture identification panel (Biofire Blood Culture Identification Panel BCID2™) with pharmacist review.

METHODOLOGY: This retrospective, quality improvement cohort study included patients admitted at a large community hospital from December 1, 2020 to February 28, 2021 with gram positive bacteremia identified on the BCID2. Comparison of endpoints was made to a control group of patients admitted July 1, 2020 to September 30, 2020 with gram positive bacteremia prior to BCID2 testing. The primary objective was to compare time to targeted therapy with traditional testing versus time to targeted therapy with BCID-2™ testing. Secondary objectives were to compare: mean time to organism identification; hospital wide days of therapy for vancomycin, daptomycin, and linezolid; and length of stay.

PRELIMINARY RESULTS: The primary outcome was statistically significant with a mean of 89.1 vs. 44.4 hours. Time to bacteria identify was statistically significant with a mean of 88.5 hours vs. 30.5 hours. Length of stay was not statistically significant. The days of therapy were reduced in the post-intervention.

CONCLUSIONS: BCID-2 testing and pharmacist intervention decreases time to targeted therapy.

I Outcomes and Safety Associated with Semi-synthetic Penicillins versus Cefazolin in the Treatment of Epidural Abscess*Presenters: Carolyn Hill*

TITLE: Outcomes and Safety Associated with Semi-synthetic Penicillins versus Cefazolin in the Treatment of Epidural Abscess

AUTHORS: Carolyn Hill, Zachary Gruss, Tyler Stone, Jim Beardsley, Jim Johnson, Erin Barnes, Chris Ohl, John Williamson

OBJECTIVE: To describe and compare outcomes of SSPs versus cefazolin in the treatment of epidural abscess caused by MSSA.

SELF ASSESSMENT QUESTION: Is cefazolin associated with positive outcomes in the treatment of SEA?

BACKGROUND: Semi-synthetic penicillins (SSPs) are favored in the treatment of spinal epidural abscesses (SEA) caused by methicillin-susceptible *Staphylococcus aureus* (MSSA) because of proven efficacy and reliable concentrations achieved in cerebrospinal fluid. SSPs are known to cause adverse events, e.g. nephrotoxicity, and can be difficult to administer in the outpatient setting. Studies examining cefazolin in the treatment of MSSA bacteremia have revealed a more favorable adverse event profile, and cefazolin is easier to administer to outpatients. However, the efficacy of cefazolin in treating SEA remains unclear. This study aims to compare outcomes of SSPs versus cefazolin in the treatment of SEA caused by MSSA.METHODOLOGY: This is a single-center, retrospective, observational study at an academic tertiary care medical center. Patients ≥ 18 years old with radiographic evidence of SEA, positive culture for MSSA, and treated with SSP or cefazolin were included. The primary outcome is clinical success at 90 days after completion of antibiotic therapy. Pertinent secondary outcomes include all-cause mortality at ninety days, need for antibiotic change before end of treatment course, and incidence of adverse events.

RESULTS: In progress.

CONCLUSIONS: In progress.

Link to presentation: <https://youtu.be/7-tEV-YgkLc>**M Impact of a Bundle Approach to Reduce the Occurrence of Iatrogenic Hypoglycemia***Presenters: Nabilah Ahmed*

TITLE: Impact of a Bundle Approach to Reduce the Occurrence of Iatrogenic Hypoglycemia

AUTHORS: Nabilah Ahmed, Ryan Crossman

OBJECTIVE: This research project aims to evaluate the rate reduction of insulin-induced hypoglycemia with a targeted bundle approach when compared to historical facility and national benchmarks at a community teaching hospital.

SELF ASSESSMENT QUESTION: Did creating filtered lists to identify patients at risk of insulin-induced hypoglycemia prevent and/or reduce insulin-associated adverse events?

BACKGROUND: Insulin-induced hypoglycemia is a common adverse event at hospitals. To prevent iatrogenic hypoglycemia, it's essential to understand which patients are more susceptible during inpatient stay. One of the primary contributing factors is altered nutrition, especially patients on nothing by mouth (NPO) status. Additionally, comorbidities, being elderly, low body weight, being on other contributory medications, and total daily insulin doses (TDD) $>0.25-0.3$ units/kg/day may increase hypoglycemia risk. Previous quality improvement studies for reducing rates of hypoglycemia have found early identification and intervention, standardized protocols, dissemination of education, and multidisciplinary collaboration to be successful in reducing severe and overall hypoglycemia.

METHODOLOGY: The following filters on the electronic health record (EHR) are used as a predictive algorithm to identify patients potentially at risk of hypoglycemia:

- a. Underweight (BMI ≤ 18.5)
- b. Impaired renal (CrCl ≤ 30 mL/min)
- c. Impaired renal (CrCl $\leq 5 \times$ ULN)
- d. Nutritional status (albumin $\leq 0.25-0.3$)

Upon identification of at-risk patients, pharmacists will contact the provider to modify the insulin regimen. This study will observe if identified at-risk patients have any occurrence of hypoglycemia during their stay. The collected data will be used to determine overall reduction of hypoglycemia occurrence and the need for implementation of further bundle components.

RESULTS: In progress

CONCLUSIONS: In progress

○ **Real-world Outcomes with Liposomal Cytarabine-Daunorubicin (Vyxeos) in Therapy-Related Acute Myeloid Leukemia and Acute Myeloid Leukemia with Myelodysplasia-Related Changes** Room A

Presenters: Kristina Murphy

TITLE: Real-world Outcomes with Liposomal Cytarabine-Daunorubicin (Vyxeos) in Therapy-Related Acute Myeloid Leukemia and Acute Myeloid Leukemia with Myelodysplasia-Related Changes

AUTHORS: Kristina D. Murphy, PharmD; Colleen McCabe, PharmD, BCOP; Danielle Schlafer, PharmD, BCOP; Subir Goyal, PhD; Nikolaos Papadantonakis, MD, PhD

OBJECTIVE: To describe response rates, adverse events, and prescribing patterns of CPX-351 outside of the clinical trial setting.

SELF ASSESSMENT QUESTION: Which of the following are associated with secondary AML resulting in higher risk of relapse with standard of care 7+3? A. Older Age B. Adverse/Complex Cytogenetics C. Multidrug Resistant Phenotypes D. All of the Above

BACKGROUND: Vyxeos (CPX-351) is a liposomal formulation of cytarabine and daunorubicin designed for improved cellular uptake and preferential drug delivery to leukemia cells. CPX-351 is approved for treatment of adults with therapy-related AML (t-AML) or AML with myelodysplasia related changes (AML-MRC), two difficult-to-treat subtypes with historically poor outcomes. However, there is limited data regarding outcomes with CPX-351 outside of clinical trials, specifically patients < 60 years of age and select subgroups appearing to have inferior outcomes.

METHODOLOGY: A retrospective chart review was conducted on all adult patients who received at least one induction cycle of CPX-351 from August 1, 2017 to June 1, 2020. The primary outcome was rate of complete remission (CR) and complete remission with incomplete blood count recovery (CRi). Secondary outcomes include rate of hematologic toxicity, time to count recovery, infection rate, overall survival, and progression free survival. CR and CRi rates were analyzed for the following subgroups: patients < 60 years of age, cytogenetic risk category, prior hypomethylating agent therapy, patients who continue onto hematopoietic cell transplant after receiving CPX-351, and consolidation regimen.

RESULTS: A total of 29 patients received CPX-351 within the defined study period. Forty-eight percent of patients were < 60 years of age. Seventy-six percent were classified as having unfavorable cytogenetic risk and 31% had complex cytogenetics. Patients included also had a wide variety of molecular characteristics including FLT3 (17%), IDH (17%), and KRAS (14%) mutations. The overall remission rate was 52% with 38% achieving a complete remission. In terms of secondary outcomes, 48% received a bone marrow transplant following induction. Second inductions occurred in 31% with the majority receiving either FLAG-IDA or CPX-351. Twenty-four percent received alternative consolidation regimens with HiDAC or bone marrow transplant while 41% received CPX-351. Rates of infection remained high. The time to hematologic recovery was consistent with what was seen in clinical trials with hematologic recovery occurring between day 33 to 37.

CONCLUSIONS: Overall remission rates in this study were similar to rates described in the initial clinical trials with CPX-351. However, this study included a significant number of younger patients with unfavorable risk, prior HMA exposure, and complex cytogenetics.

Audiovisual Link: <https://youtu.be/HXI6IrdCBFE>

B Differences of pharmacist completed annual wellness visits compared to pharmacist taught resident physician visits in a family medicine clinic.

Presenters: Marina Matthews

TITLE: Pharmacist completed annual wellness visits compared to pharmacist-taught, resident physician completed visits in a family medicine clinic.

AUTHORS: Marina Matthews, PharmD; Morgan Rhodes, BCACP, BC-ADM

OBJECTIVE: Compare pharmacist-physician co-visits to resident physician visits for adherence to guidelines and completion of required components of the annual wellness visit and interventions based on current guidelines.

SELF ASSESSMENT QUESTION: What are the components of an Annual Wellness Visit?

BACKGROUND: In primary care, managing preventative services has been shown to take up to 7.4 hours per day per physician. AWVs provide an opportunity for providers to address preventative services in an office visit while being no cost to the patient. Pharmacists performing annual wellness visits provides an opportunity to reduce workload, but also provide a unique skillset to address medications and preventative services. Though AWVs have been completed since 2011, there aren't many studies comparing head-to-head outcomes of physicians to support staff who complete AWVs alongside. There is even less data in the medical resident teaching setting, where pharmacists teach residents to complete AWVs and prepare them for future practice. These pharmacist-taught annual wellness visits are important to provide an optimal learning experience for medical residents.

METHODOLOGY: This was a retrospective chart review of all patients from the Prisma Health Family Medicine Center that had a completed AWV from November 1st, 2020 to March 31st, 2021 as a part of routine care. The primary aim is to determine whether the percent of visits performed by PharmD providers that completely met the applicable guidelines is non-inferior to the percent of visits performed by physician providers that completely met the applicable guidelines. The secondary aim is to compare descriptively the percent of components performed by pharmacists that met the applicable guideline to the percent performed by resident physicians that met the same applicable guideline.

RESULTS: A total of 31 patients were included in this IRB-approved study, with 12 (39%) patients in the pharmacist visit group and 19 (61%) in the resident-physician group. Baseline characteristics were similar between groups. There was no statistical significance between groups for any guideline recommended screenings except DEXA scans (9 vs. 7, $p=0.046$). Of the vaccination recommendations, Shingles (100% v. 38.9%, $p=0.001$), Pneumococcal (100% vs. 52.6%, $p = 0.005$), and Tdap (100% v. 57.9%, $p =0.012$), were all statistically significant in being address by a pharmacist. With regards to adherence to ADA & ACC/AHA guidelines, there was no significance between groups.

CONCLUSIONS: Significantly more immunizations, and DEXA scans were addressed in pharmacist visits, compared to resident-physician visits. With regards to adherence to current ADA & ACC/AHA guidelines, there was no difference between groups. There was no statistically significant difference in overall USPSTF guideline adherence between groups. While, pharmacists trended towards completing more recommended screenings (81.3% v 50%), there was no significance between groups.

Presenters: Alexander Le

TITLE: Evaluation of direct oral anticoagulant (DOAC) utilization in a primary care setting

AUTHORS: Alexander Le, Kimberly Zitko, Laura Schalliol

OBJECTIVE: Evaluate the utilization of DOACs in a primary care setting to determine whether patients' regimens follow guidelines-based recommendations and approved FDA labeled dosing and indication.

SELF ASSESSMENT QUESTION: What roles could pharmacists play in monitoring patients on a DOAC?

BACKGROUND: Direct oral anticoagulants (DOACs) are the first-line agents for most anticoagulation situations in patients with non-valvular atrial fibrillation and venous thromboembolism. The conditions that need to be satisfied prior to initiating a DOAC, added with dosing variability and lack of frequent monitoring, leaves uncertainty regarding appropriate utilization of these agents.

METHODOLOGY: A retrospective cohort chart review was completed on patients on a prescribed DOAC agent between January and June 2020. This study was conducted at Trinity Medical Associates in Knoxville, TN.

Researchers compared patients' DOAC dosing and medical history to determine whether the patient was receiving the medication in accordance with evidence-based recommendations. Descriptive statistics were utilized for the primary objective. Fisher's exact test was used to evaluate any associations between the specific DOAC agents used and the parameters of inappropriate utilization.

RESULTS: Sixty-four patients were identified to be on a DOAC prescription actively managed at the clinic. Twelve patients (18.8%) met at least one of the parameters for inappropriate utilization. The most common parameters were inappropriate dosing (9.6%) and absence of hepatic function data (7.8%). The only parameter that showed statistically significant associations with the specific DOAC agents used was inappropriate indication ($p=0.002$).

CONCLUSIONS: Optimizing DOAC regimens remains a challenge, particularly with dosing. Reviewing pertinent lab data such as hepatic and renal function are appropriate steps that need to be taken prior to and during DOAC initiation. There is opportunity for pharmacists to impact patient care with closer monitoring of patients on a DOAC to identify medication errors, assess medication adherence, and screen for potential adverse effects.

Presentation Link (Youtube): <https://youtu.be/KXlx6ggl18g>

Presenters: Elizabeth Clegg

TITLE: Impact of implementing pharmacist-led warfarin monitoring in the inpatient setting of a rural community hospital

AUTHORS: Elizabeth Clegg, Lindsey Arthur, Connor Floyd, Jun Wu

OBJECTIVE: Describe the impact of pharmacist-led warfarin monitoring on INR values in an inpatient setting.

SELF ASSESSMENT QUESTION: What are the benefits of having pharmacist-led warfarin monitoring during hospitalization?

BACKGROUND: Maintaining therapeutic INRs in warfarin management can be challenging given the vast list of drug interactions, medical comorbidities, and dietary changes that can affect warfarin. The purpose of this study was to evaluate the impact of implementing a pharmacist-led warfarin monitoring program in a rural community hospital.

METHODOLOGY: This was a pre-post intervention study looking at the impact of pharmacist-led warfarin management comparing a three-month baseline cohort retrospectively to a three-month prospective cohort after implementation. Eligible participants consisted of adults admitted with an indication for warfarin therapy. The primary endpoint was the number of therapeutic INRs. Secondary endpoints included incidence of subtherapeutic or supratherapeutic INRs, incidence of thrombosis or bleeding, days without INR collection, and number of patients discharged with a subtherapeutic INR without appropriate outpatient bridging.

RESULTS: A total of 246 patients were screened and 216 patients were included for analysis. There were significantly more therapeutic INRs in the post-implementation cohort (28.9% v. 35%, $p=0.03$). The post-implementation cohort had fewer subtherapeutic INRs (55.4% v. 44.4%, $p=0.0003$), days without INR collection (120 v. 96, $p=0.0014$), bleeding (19.5% v. 1.9%, $p=0.0097$), and patients discharged with a subtherapeutic INR without an appropriate bridging agent (23.9% v. 5.8%, $p<0.0002$). There were however significantly more supratherapeutic INRs in the post-implementation group (13.3% v. 18.5%, $p=0.0173$), but no significant increase in INRs >5.

CONCLUSIONS: This study showed that the implementation of a pharmacist-led warfarin monitoring protocol results in an increase in therapeutic INRs. Patients who had warfarin monitoring conducted by pharmacists also had less frequent subtherapeutic INRs, incidence of bleeding, and were less likely to be discharged without an appropriate bridging agent if indicated.

<https://youtu.be/JihY3WXiv38>

Presenters: Chandler Combs

TITLE: Assessment of a clinical pharmacist-driven medication appeal process in a dermatology practice

AUTHORS: Chandler Combs, B. Kyle Hansen, Sarah Pearce, Jennifer Young, Kathy Bricker

OBJECTIVE: Describe the role of the clinic-embedded pharmacist in the process of completing appeals for prior authorization denials for prescription medications.

SELF ASSESSMENT QUESTION: What is one example of a disease state in the dermatology field where a clinic-embedded pharmacist can impact care through the appeal process?

BACKGROUND: Prior authorizations (PAs) from insurance companies are necessary for controlling medication costs and drug appropriateness. However if denied, they can be extremely burdensome for clinic staff as the appeal process is complex and lengthy. In this study, the primary objective will be to evaluate the impact of a clinical pharmacist embedded in a dermatology practice on the rate of medication appeal submission.

METHODOLOGY: This study is designed as a retrospective, single-center review of appeal determinations for adult patients at a health-system based dermatology practice. The primary outcome is the change in the rate of appeals submitted pre-implementation of a pharmacist-driven appeal process during the period of August 1st, 2018 and May 31st, 2019 and post-implementation during the period of August 1st, 2019 and May 31st, 2020. Secondary outcomes are the change in the rate of appeal approvals, time to appeal submission and number of appeals submitted.

RESULTS: 245 PA denials were included in this study. The rate of appeal submission increased by 36.8% with the addition of a clinic-embedded pharmacist in the dermatology practice (20.8% vs. 57.6%, $p < 0.001$). A reduction of 46.7 days was seen in the average time to appeal submission (67.6 days vs. 20.9 days, $p < 0.001$). The rate of appeal approval showed an increase of 17.4% with the addition of a clinic-embedded pharmacist (47.6 vs. 65%, $p = 0.05$).

CONCLUSIONS: The presence of a clinic-embedded pharmacist in a dermatology practice positively impacted the rate of appeal submission, the rate of appeal approval and time to appeal submission. The field of dermatology provides an optimal environment for the addition of pharmacy services to assist with medication access.

<https://youtu.be/xRFL5feBvko>

Presenters: Adela Lupas

Association of ACEI/ARBs use with increase in severity of disease or rate of mortality in COVID-19 patients

Adela Lupas, Matthew Schwengels, Katherine E. Bradley

Background/Purpose: Various animal models showed higher expression of angiotensin-converting enzyme-2 (ACE-2) receptor as being beneficial or harmful in COVID-19 and previous studies with angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB) use show varying results on severity outcomes in COVID-19 patients. The purpose of this study was to determine the association of ACEI/ARBs use with mortality and severity of disease among hospitalized patients with COVID-19 at a rural community hospital.

Methods: Patients admitted from February 1, 2020 to September 30, 2020 with confirmed COVID-19 infection, ≥ 18 years old, and on anti-hypertensive medications were included. Patients such as pregnant women, children, inmates or those who transferred to other facilities were excluded from the study. The primary endpoints were in-hospital mortality, ICU admission, acute respiratory distress syndrome, and new hospice care without pre-existing terminal conditions, and secondary endpoints were assessed as composite endpoints. Student's t-test was used for continuous variables and the Pearson chi-square test for categorical variables. Multivariable logistic regression analyses were done to test the primary and secondary endpoints using SAS and R version.

Results: Out of 400 patients included in the study, 274 (69%) were on ACEI/ARB at baseline. Patients in ACEI/ARB group were younger (58 vs. 62 years) and had a higher prevalence of hypertension (91.2 vs. 68.3). There was no difference in sex, BMI, other comorbidities among the groups. After adjustment of multiple covariates, there was no difference in outcomes between the groups including mortality, ICU admission, acute respiratory distress syndrome, and new hospice care without pre-existing terminal conditions.

Conclusion: Previous use of ACEI/ARB does not worsen outcomes in hospitalized COVID-19 patients.

Presentation Objective: Identify the effects of ACEI/ARB use on COVID-19 mortality and severity of disease in COVID-19 patients

Self-assessment: Which of the following outcomes showed statistical significance when adjusted for age, HTN, and CKD?

Presenters: Alex Chappell

TITLE: Evaluation of Lactated Ringer's versus 0.9% Sodium Chloride in Diabetic Ketoacidosis

AUTHORS: Alex Chappell and Michael Simpson

OBJECTIVE: Review hypothetical benefits of balanced crystalloids over normal saline for fluid resuscitation in diabetic ketoacidosis and discuss the findings of this research.

SELF ASSESSMENT QUESTION: What benefits might be associated with fluid resuscitation with Lactated Ringer's in diabetic ketoacidosis and what might be challenges to using this fluid in practice?

BACKGROUND: Normal saline is the standard of care for fluid resuscitation in diabetic ketoacidosis. Large volumes of normal saline can induce a hyperchloremic metabolic acidosis which may exacerbate the acidosis. Buffered crystalloids have an alkalinizing effect and may reduce time to resolution of diabetic ketoacidosis. The purpose of this research was to evaluate the effect of choice of crystalloid, either Lactated Ringer's or 0.9% normal saline, on relevant clinical outcomes in diabetic ketoacidosis.

METHODOLOGY: This is a retrospective study comparing a standard of care group that received fluid resuscitation with normal saline and an experimental group that received Lactated Ringer's. Providers were educated on benefits and risks of Lactated Ringer's resuscitation in diabetic ketoacidosis and clinical pharmacists were involved in ordering the fluids after consultation with the provider. Eligible patients include those > 18 presenting with a diagnosis of diabetic ketoacidosis. Exclusion criteria include receipt of sodium bicarbonate or >2L of non-study fluid. Retrospective chart review was conducted to gather baseline demographic data including age, sex, medical history as well as relevant admission data including labs and medication orders.

RESULTS: In progress.

CONCLUSIONS: There have been many unforeseen challenges associated with this research including provider resistance to Lactated Ringer's in patients with hyperkalemia and overall poor adoption into practice at our site. Many patients with diabetic ketoacidosis present with hyperkalemia secondary to acidosis and hemoconcentration from osmotic diuresis. Hyperkalemia may present a barrier to the adoption of Lactated Ringer's as standard of care in diabetic ketoacidosis. More education and data about the risk, or lack thereof, for worsening hyperkalemia with Lactated Ringer's is needed.

Presenters: Megan Harlow

TITLE: Impact of continuous sedative selection on burn patient fluid resuscitation requirement

AUTHORS: Megan Harlow, Doug Wylie, Tyson Kilpatrick, Jan Jansen

OBJECTIVE: Explain the impact of sedative choice on fluid resuscitation in burn patients.

SELF ASSESSMENT QUESTION: True or False: This study found that use of midazolam was associated with a higher rate of delirium.

BACKGROUND: Patients that sustain severe burns (over 20% total body surface area) experience extensive capillary leakage. After appropriate resuscitation, this leakage improves within 18-24 hours and the need for fluid resuscitation declines. However, there is morbidity associated with both under and over resuscitation. Patients may also require sedation during this time. The impact of sedation on fluid requirements in this patient population is currently unknown. This study aims to determine if using midazolam for sedation reduces intravenous fluid requirements compared to patients receiving propofol therapy.

METHODOLOGY: Retrospective chart review was performed on patients ≥ 18 years old with severe burns who received sedation with midazolam or propofol for continuous sedation during the initial fluid resuscitation phase of their treatment. Patients were excluded if they received both propofol and midazolam simultaneously or expired in less than 48 hours. Fluid requirements were recorded over the first 48 hours.

RESULTS: 84 patients were included in the study. The total 48h fluids administered was 6.1 ± 2.9 mL/kg/TBSA in patients with no exposure to propofol compared to 6.0 ± 3.2 in patients exposed ($p=0.821$). The patients with no exposure to propofol required fewer colloid fluids in the first 48h compared to those exposed (0.4 ± 0.3 vs 0.7 ± 0.9 mL/kg/TBSA respectively, $p=0.015$). Midazolam use was associated with a higher rate of delirium ($p=0.011$), but not with a higher amount of acute respiratory distress syndrome ($p=0.011$).

CONCLUSIONS: Midazolam use did not impact the total amount of fluid administered in the first 48h of hospitalization but was associated with a reduction in the total volume of colloid fluid administered. Midazolam use was associated with a higher rate of delirium.

Video Link: <https://youtu.be/NeJ8IILPZr8>

I **Evaluation and Assessment of Antimicrobial Therapy Duration in Patients Discharged on Antibiotics for at the Atlanta VA Medical Center (AVAMC)** Room I

Presenters: Lucy Yang

TITLE: Evaluation and Assessment of Antimicrobial Therapy Duration in Patients Discharged on Antibiotics for at the Atlanta VA Medical Center (AVAMC)

AUTHORS: Lucy Yang, Amara Fazal, Lauren Epstein, Robert Gaynes, and Tiffany Goolsby

OBJECTIVE: Determine excess number of days of antibiotics prescribed at discharge

SELF ASSESSMENT QUESTION: T/F: Antibiotics are commonly overprescribed at discharge?

BACKGROUND: The goal of antibiotic stewardship programs (ASP) is to improve clinical outcomes and minimize harm. Despite widespread implementation of ASPs in the acute care setting, many antibiotics prescribed are completed after hospital discharge. Several retrospective studies demonstrate antibiotics prescribed at discharge result in an excess duration of therapy, which increases risk of acquiring multi-drug resistant organisms and leads to antibiotic associated adverse reactions. Therefore, preventing unnecessary antibiotic use is essential in improving patient care. Our goal was to assess total duration of antibiotics including both inpatient and outpatient durations for common infections to inform best practices for the AVAMC ASP.

METHODOLOGY: Patients included were hospitalized during January 1, 2019 through February 29, 2020, who were prescribed antibiotics on discharge indicated for urinary tract infections (UTI) (cystitis/pyelonephritis), pneumonia and skin and soft tissue infection (SSTI) (mild/moderate) using IDC-10 codes. A standardized chart abstraction tool and individual charts were reviewed for antibiotic durations. Data collection included patient demographics, diagnosis, duration of hospitalization, type and duration of antibiotic, type of prescriber, and admissions team.

RESULTS: We reviewed 282 patients and 113 met inclusion criteria, 32 UTIs, 39 pneumonia and 42 SSTI; Across all three categories, 16 UTI, 20 pneumonia and 21 SSTIs received prolonged courses of antibiotics with a median duration of 3 days for UTI, 2 for pneumonia and 3 for SSTIs.

Patients commonly received prolonged duration of antibiotics for SSTIs. Higher proportion of patients treated by hospitalists received prolonged courses compared to patients assigned to training teams for all indications.

CONCLUSIONS: Hospitalized patients at Atlanta VAMC diagnosed with UTI, pneumonia or SSTIs often received prolonged course of antibiotics prescribed following hospital discharge. Further analysis is needed to determine indications for prolonged antibiotic courses and areas for improvement.

Presentation: <https://youtu.be/AdU01RbVso>

I **Impact of Probiotics on the Development of Clostridioides difficile Infection in Patients Receiving Fluoroquinolones** Room H

Presenters: Mary Sheffield

TITLE: Impact of Probiotics on the Development of Clostridioides difficile Infection in Patients Receiving Fluoroquinolones

AUTHORS: Mary E. Sheffield, Bruce M. Jones, Blake Terrell, Jamie L. Wagner, Christopher M. Bland

OBJECTIVE: Identify the impact of probiotic administration on the development of primary CDI among patients receiving high-risk antibiotics.

SELF ASSESSMENT QUESTION: Which antibiotics have the highest associated risk of CDI?

BACKGROUND: Fluoroquinolones (FQ) are associated with an increased risk of Clostridioides difficile infection (CDI) due to disruption of normal gastrointestinal flora. Probiotic supplementation has been shown to reduce risk of antibiotic-associated diarrhea and primary CDI. The purpose of this study was to evaluate impact of probiotics on the development of primary CDI among patients receiving fluoroquinolones.

METHODOLOGY: Retrospective analysis of adult patients admitted from August 1, 2018 to August 31, 2020, that received ≥ 3 days of definitive monotherapy with levofloxacin or ciprofloxacin within 72 hours of admission. The probiotic group required ≥ 1 dose of probiotics during antibiotic treatment. Patients were randomized to include 100 patients in each group. Patients with a history of CDI, antibiotic use within 90-days of hospitalization, or co-administration of systemic antibiotics for >24 hours during definitive therapy were excluded. Primary outcome was incidence of primary CDI. Key secondary outcomes include rates of diagnostic stool testing performed and non-CDI gastrointestinal-related side effects.

RESULTS: Patients on FQ who received probiotics had fewer overall cases of CDI compared to those who did not (0% vs. 3%, $p=0.246$). Patients on FQ who received probiotics had statistically significantly fewer stool tests performed compared to those who did not receive probiotics (4% vs. 16%, $p=0.005$). Non-CDI gastrointestinal-related side effects occurred in 30% and 35% of patients receiving FQ with and without probiotics, respectively.

CONCLUSIONS: Rates of CDI in patients receiving a FQ without probiotics were consistent with current literature. Probiotic use was associated with a statistically significantly lower incidence of C. difficile stool tests performed.

Further research is warranted to optimize probiotic prescribing in high-risk patients, such as patients receiving FQ.

<https://youtu.be/DO59c8MCASc>

Presenters: Matthew Westling

TITLE: Non-Steroidal Anti-inflammatory Drug (NSAID) Use in Patients with Sleeve Gastrectomy

AUTHORS: Matthew Westling

ACPE OBJECTIVE: Identify guideline recommendations for NSAID use in bariatric surgery patients.

SELF ASSESSMENT QUESTION: What is the guideline recommendation for NSAID use in bariatric surgery patients?

BACKGROUND: The purpose of this project was to describe the use of prescription NSAIDs in sleeve gastrectomy patients and assess the impact of prescription NSAIDs on endoscopic findings and reported gastric symptoms.

METHODOLOGY: Retrospective chart review on sleeve gastrectomy patients aged 18-90 years who did not have a conversion between bariatric procedures. Patient data included post-operative NSAID prescriptions, EGD findings, and reported gastric symptoms. NSAID prescriptions and patient specific NSAID use were described along pre-defined categories. The association between receiving NSAID prescriptions and the frequency of reported gastric symptoms was analyzed using a Fischer's exact test. Statistical significance was defined as p-value 0.05) or reporting gastric symptoms ($p > 0.05$).

RESULTS: There were 190 post-operative NSAID prescriptions were distributed across 34% ($n=33$) of patients. Most prescriptions were medium dosing category (63.7% $n = 121$). High dose NSAID prescriptions had the longest day-supply on average ($\bar{x} = 62.7$ days). Average patient exposure to NSAID prescriptions was 245.3 days. Average time from gastric sleeve until first NSAID prescription was 521 days. There was no association between receiving an NSAID prescription and reporting new or worsening gastric symptoms ($p > 0.05$).

CONCLUSIONS: Current practice guidelines recommend limiting the use of NSAIDs after sleeve gastrectomy. We found about one-third of patients that underwent sleeve gastrectomy were receiving some form of post-operative NSAID. However, receiving NSAID prescriptions were not associated with reporting new or worsening gastric symptoms.

O **Evaluation of initial empiric dose reduction of tyrosine kinase inhibitors for patients with metastatic renal cell carcinoma**

Presenters: Tia Stitt

TITLE: Evaluation of initial empiric dose reduction of tyrosine kinase inhibitors for patients with metastatic renal cell carcinoma

AUTHORS: Tia Stitt, Katherine Saunders, Brooke Cottle, Amber Clemmons

OBJECTIVE: Evaluate how many patients with mRCC were initiated on reduced dose TKIs and if they experienced differences in clinical outcomes including overall survival, duration of therapy, frequency of toxicities leading to dose modification/therapy discontinuation.

SELF ASSESSMENT QUESTION: What was the most common justification for intervention(s) made for a patient's TKI therapy?

BACKGROUND: Tyrosine kinase inhibitors (TKIs) are routinely used as treatments for patients with metastatic renal cell carcinoma (mRCC). Adverse events occur frequently. Studies supporting initial lower doses of TKIs in mRCC are limited. Despite limited evidence, empiric dose reductions of TKIs for mRCC are seen in clinical practice at our institution. The purpose of this study was to evaluate the impact of starting TKI dose in patients with mRCC on various clinical outcomes.

METHODOLOGY: This was a retrospective chart review of patients with mRCC who were prescribed a TKI from January 1, 2015 - June 30, 2020 at the Georgia Cancer Center-Laney Walker campus. Eligible patients were ≥ 18 years and prescribed sunitinib, pazopanib, cabozantinib, levantinib plus everolimus, everolimus, or axitinib. Patients were divided into groups based on initial dose of TKI: full-FDA labeled dose versus reduced. Primary objective was percentage of patients who received reduced-dose TKI. Secondary objectives included evaluating the impact of initial reduced dosing of TKIs on duration of therapy, further dose reductions or interruptions, and overall survival, as well as evaluating if initial reduced dosing is associated with decreased frequency of toxicities and/or number of toxicities leading to an intervention. Patients with second or third line TKI for mRCC were evaluated descriptively for the same outcomes.

RESULTS: Overall, 63 patient charts were reviewed and only 42 patients met criteria to be included. There were 28 (66.7%) in the reduced starting dose group and 14 (33.3%) in the full starting dose group. As for the secondary outcomes, no differences were observed.

CONCLUSIONS: Further studies are needed to determine if reduced starting dose of TKIs in mRCC will allow for better tolerability without compromising efficacy.

YouTube link to AV video: <https://youtu.be/am0JqIFbOwg>

Presenters: Taylor McGhee

TITLE: Administration of PHQ-9 screening in an employee sponsored diabetes program

AUTHORS: Taylor McGhee, PharmD, Tacorya Adewodu, PharmD, BCACP, CPP, Danielle Raymer, PharmD, BCACP, CPP, Danielle Baker, PharmD, MS, BCPS, Virginia Yoder, PharmD, BCPS, BCACP, CDE, CPP, Beth Williams, PharmD, Pharmacy System Director, and Andrew Hwang, PharmD, BCPS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the processes for implementing a PHQ9 survey into an ambulatory care pharmacist's workflow.

SELF ASSESSMENT QUESTION: How does mental health impact patients with diabetes and how can pharmacists make an impact?

BACKGROUND: The primary objective of this study was to determine the capture rate of referrals for evaluation of undiagnosed or suboptimal treatment for depression in patients in an employee sponsored diabetes program. Characteristics of patients within each of the PHQ-9 groupings will also be assessed to evaluate where the largest need for care can be made. The evaluation of mental health in patients diagnosed with chronic diseases, such as diabetes, is imperative to positive outcomes. This study will aim to provide insight on how a screening tool implemented in diabetes visits with a pharmacist can help to close the depression care gap which may lead to improved outcomes for diabetes and depression.

METHODOLOGY: This retrospective, chart review study includes patients with diabetes who are enrolled in the Healthy Outcomes Partnership for Employees (HOPE) Program at Wake Forest Baptist Medical Center Pharmacy Care Clinic locations. Patients are included in the study if they have an in clinic or phone diabetes visit and receive a PHQ-9 questionnaire from October 1, 2020 to November 30, 2020. Data will be collected following the two month period. The primary endpoint will measure the proportion of patients with a PHQ-9 score indicative of depression. Secondary endpoints will measure the proportion of patients with a PHQ-9 score within each grouping of mild, moderate, moderate-severe, and severe depression; proportion of patients on treatment for depression who scored >10 points; and the number of prescriptions the patients were on for diabetes management. Exploratory endpoints will measure the types of interventions after pharmacist escalation of care and the baseline characteristics of patients within each PHQ-9 grouping.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Caitlin G Brown

TITLE: A comparison of vaccination rates to national standards in pharmacist managed patients with type 2 diabetes mellitus

AUTHORS: Caitlin Brown, Tara Koehler, Meredith Lopez

OBJECTIVE: Describe pharmacists' impact on vaccination rates.

SELF ASSESSMENT QUESTION: Pharmacist-managed diabetic patients surpassed the national goals and averages for which vaccines?

BACKGROUND: Determine the differences in vaccination rates for patients with type 2 diabetes mellitus managed by an outpatient family medicine pharmacist compared to national standards and averages by HealthyPeople 2020 and CDC.

METHODOLOGY: This retrospective, cross-sectional chart review examined if patients received any hepatitis B or PPSV23 vaccinations prior to September 2, 2020, and if they received an influenza vaccine within the last calendar year. Established patients of the outpatient family medicine clinical pharmacist as of September 1, 2020, referred to outpatient family medicine clinical pharmacist for type 2 diabetes mellitus management, diagnosis of type 2 diabetes mellitus, and age 18 to 64 were included. Exclusion criteria consists of diagnosis of type 1 diabetes mellitus, pregnancy, or 65 years of age and older.

RESULTS: 200 patients were screened for inclusion and final sample size was 141. Pharmacist-managed patients had higher rates of vaccination for PPSV23 (87.2%) and hepatitis B (41%) than the HealthyPeople2020 goals and the CDC national average. Influenza rates (61%) were lower when compared to HealthyPeople 2020 goals and not significantly different from the CDC national average. There were no statistically significant associations of health disparities with influenza vaccination rate. For every one-year increase in pharmacist management, subjects were less likely to get a hepatitis B vaccine. For every one-year increase in pharmacist management, subjects were more likely to get a PPSV23 vaccine.

CONCLUSIONS: Due to sample size, correlation between pharmacist management and vaccination rates could not be established. More research utilizing a larger sample size and examining reasons for vaccine refusal should be conducted to further understand the pharmacist role in vaccination status.

LINK: https://youtu.be/94WRd01_MXw

Y Assessing the impact of community pharmacists on diabetes knowledge, hemoglobin A1c, and cholesterol in patients with prediabetes and patients with diabetes

Room G

Presenters: Paul Dossett

TITLE: Assessing the impact of community pharmacists on diabetes knowledge, hemoglobin A1c, and cholesterol in patients with prediabetes and patients with diabetes

AUTHORS: Paul Dossett, Paige Brockington, Jennifer Elliott, Sharon Sherrer, Kevin Philippart

OBJECTIVE: Identify community pharmacists' impact on diabetes knowledge retention and overall patient outcomes

SELF ASSESSMENT QUESTION: What is a validated tool that can assess a patient's knowledge of diabetes?

BACKGROUND: The Center for Disease Control reports crude estimates of 34.2 million people in the United States had diabetes and that 88 million people are at an increased risk of being diagnosed with diabetes in 2018.

Pharmacologic agents have been the front runner for managing this disease state; however, recently more focus has been placed on disease state education and living a healthy lifestyle. The purpose of this study is to evaluate the impact community pharmacists have on patient knowledge retention, hemoglobin A1c, lipid profile, and BMI using a validated knowledge assessment tool.

METHODOLOGY: This is a prospective cohort study of patients with prediabetes and patients with diabetes at an independent pharmacy. This study will integrate aspects of knowledge retention in patients currently diagnosed or at risk for diabetes. Once patients meet inclusion criteria, patients will sign the informed consent document and be evaluated using the Diabetes Knowledge Test (DKT2) for baseline knowledge. The patient will be educated using a brief standardized education tool. Once the patient is educated, the patient will be weighed, measured, and the BMI will be calculated. Once the initial measurements are completed, the patient's hemoglobin A1c and Cholesterol (TC, HDL, LDL, and TG) will be obtained using point of care (POC) testing devices. The DKT2 will be used again to assess their post-education knowledge. At months 3, 6, and 9 the patient will repeat the DKT2, POC testing, BMI, and waist circumference measurements. Throughout the 9 months, adherence to statin therapy and therapy changes in antihyperglycemic agents will be documented.

RESULTS: In progress

CONCLUSIONS: In progress

YOUTUBE LINK TO PRESENTATION: <https://youtu.be/DJ-SJpYn--c>

R Atypical Antipsychotic Use Following Severe Traumatic Injury

Room C

Presenters: Elaina Etter

TITLE: Atypical Antipsychotic Use Following Severe Traumatic Injury

AUTHORS: Elaina Etter, Hannah X. Leschorn, Emily A. Durr

OBJECTIVE: Identify patient characteristics that increase the likelihood of receiving an atypical antipsychotic following severe traumatic injury.

SELF ASSESSMENT QUESTION: Which outcomes differed significantly between patients who received an atypical antipsychotic versus those who did not?

BACKGROUND: Critically ill patients commonly experience delirium and agitation as a manifestation of acute brain dysfunction. Patients who experience delirium are at a higher risk for increased length of stay, cognitive impairment, and death. Post-traumatic agitation is a subset of delirium that is frequently managed with atypical antipsychotics, despite limited evidence supporting their use.

METHODOLOGY: A single-center, retrospective cohort study was conducted on patients admitted following traumatic injury from January 1, 2019 through April 30, 2019. Patients were included if they were admitted to the intensive care unit (ICU) with an injury severity score (ISS) of 15 or greater and a minimum hospital length of stay of 5 days.

Exclusion criteria included baseline cognitive deficits (stroke or dementia) or an antipsychotic home medication. The primary objective was to evaluate the percent of admitted patients prescribed quetiapine, olanzapine, or ziprasidone.

RESULTS: Within this cohort, 229 patients met inclusion criteria, and 54 patients (24%) received a new-start atypical antipsychotic. In comparison to those who did not receive an atypical antipsychotic, patients tended to be younger (median 31 vs. 46 years, $p=0.032$) with higher rates of penetrating trauma (33.3% vs. 20.0%, $p=0.042$), predominantly driven by high rates of gunshot wounds in the overall population (31.5% vs. 18.3%, $p=0.039$). Patients who received an antipsychotic presented with a lower median GCS (12 vs. 15, $p<0.001$) and higher rates of urine drug screens (46.3% vs. 29.7%, $p=0.024$), with higher rates of positive drug screens (42.6% vs. 20.6%, $p<0.001$).

LINK: <https://drive.google.com/file/d/1ddJ-INecbgCy8EtJm3ZO9ehHheobjwYH/view?usp=sharing>

R Evaluation of the Role and Impact of Emergency Medicine Clinical Pharmacists (EMCPs) in the Post-Discharge Culture Review Process

Room D

Presenters: Fenan Woldai

TITLE: Evaluation of the Role and Impact of Emergency Medicine Clinical Pharmacists (EMCPs) in the Post-Discharge Culture Review Process

AUTHORS: Fenan Woldai, Nirali Naik, Fitsum Teferi

OBJECTIVE: Identify the types and frequency of interventions that were made by the EMCPs during the culture review process.

SELF ASSESSMENT QUESTION: Which types of interventions did the EMCPs have the most impact on during the culture review process?

BACKGROUND: The purpose of this study was to evaluate the role and impact of EMCPs in the follow-up culture review (FCR) process for patients discharged from a community hospital emergency department (ED). The results will be used to explore expansion of the EMCP's role in the FCR by developing an ED collaborative practice agreement.

METHODOLOGY: This was a single center, prospective, descriptive study of adult patients discharged from the ED who had a positive urine, sexually transmitted disease, throat swab, and/or wound culture post-discharge from October 2020 through December 2020. Patients were identified by a daily positive culture report. Culture re-sults were transcribed by staff to a culture callback form. The advanced practice providers (APPs) re-viewed the form and made initial recommendations. The EMCP reviewed the form along with the APP's recommendations and assessed the need for additional intervention(s). If additional intervention was required, the EMCP sought physician approval.

RESULTS: In progress.

CONCLUSIONS: In progress.

R Impact of Early Sedative Medication Choices for Ventilated Patients in the Emergency Department

Room B

Presenters: David Oliver

TITLE: Impact of Early Sedative Medication Choices for Ventilated Patients in the Emergency Department

AUTHORS: David Oliver, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: Evaluate the impact of initial sedation on clinical outcomes at a community teaching hospital.

SELF ASSESSMENT QUESTION: What effect did initial sedation with propofol in the emergency department have on duration of mechanical ventilation?

BACKGROUND: Sedation is commonly used in mechanically ventilated patients to promote ventilator compliance, prevent agitation related harm, and relieve anxiety and stress. Recent studies have focused on the effects of early light vs deep sedation in the emergency department (ED) on patient outcomes. The effects of specific initial sedative and analgesedative agent choices in the ED on patient outcomes are less defined. The purpose of this study was to determine the impact of initial sedation choices in the ED on clinical outcomes.

METHODOLOGY: The electronic health record was utilized to perform an IRB-approved retrospective chart review of ED patients who visited this institution from January 2017 to December 2019. The primary outcome was duration of mechanical ventilation. Secondary endpoints included time to delirium, hospital mortality, hospital length of stay (LOS), intensive care unit LOS, ED LOS, and whether other sedatives or analgesics were added for sedation. Sedative and analgesedative regimens that were assessed included propofol, ketamine, benzodiazepines, dexmedetomidine, and fentanyl. Other baseline characteristics were also obtained. Endpoints were analyzed using appropriate descriptive and inferential statistics.

RESULTS: Two-hundred fifty patients were included in the study. Propofol was used in 171 patients and was the most utilized initial sedative agent. The median duration of mechanical ventilation for propofol, ketamine, benzodiazepines, fentanyl and dexmedetomidine was 2.2, 3.6, 2.7, 2.1, and 1.8 days respectively ($p=0.78$). The results for each of the secondary outcomes were similar among groups.

CONCLUSIONS: No significant difference was found between initial sedative groups regarding median duration of mechanical ventilation or any secondary outcome.

Video Link: <https://youtu.be/zTFkRmdTvuc>

I **Evaluation of Remdesivir and Convalescent Plasma and Their Impact on In-Hospital Mortality and Time to Discharge for Patients with COVID-19** Room I

Presenters: Brittany Bowers

TITLE: Evaluation of Remdesivir and Convalescent Plasma and Their Impact on In-Hospital Mortality and Time to Discharge for Patients with COVID-19

AUTHORS: Brittany Bowers, PharmD; Heather Gibson, PharmD, BCPS, BCIDP; Jennifer Campbell, PharmD, BCPS; Drew Kessell, PharmD, MBA, MS

OBJECTIVE: Determine the effect on in-hospital mortality and time to discharge in patients who received remdesivir or convalescent plasma therapy.

SELF ASSESSMENT QUESTION: Does the information provided support the use of remdesivir in hospitalized COVID-19 patients?

BACKGROUND: The coronavirus disease 2019 (COVID-19) pandemic led to the Emergency Use Authorization (EUA) of experimental treatment options, including remdesivir and convalescent plasma, for hospitalized COVID-19 patients. Remdesivir was FDA-approved on October 22, 2020 for the treatment of COVID-19 in adults and pediatric patients ≥ 12 years of age weighing at least 40 kg. Randomized control trials (RCTs) have been conducted to assess the benefit of remdesivir in hospitalized COVID-19 patients, however, the results of these studies have been inconsistent. Small scale studies have demonstrated safety and clinical improvement in patients receiving convalescent plasma. The objective of this study is to determine the effect on in-hospital mortality and time to discharge in patients who received remdesivir or convalescent plasma therapy.

METHODOLOGY: A retrospective observational study will be conducted to assess the effect of remdesivir and convalescent plasma therapy on in-hospital mortality and time to discharge in patients admitted to the FirstHealth of the Carolinas hospital system between April 1, 2020 to August 31, 2020. Patients greater than 18 years old with a laboratory confirmed case of COVID-19 who received one or both of the treatment options will be included in this study. Exclusion criteria will include patients who have received tocilizumab. Patients will be divided into three groups based on receiving remdesivir, plasma, or both treatment options. A subgroup analysis will be conducted on location of admission (intensive care unit vs. general medicine) and baseline characteristics such as: gender, age, ethnicity, and comorbid conditions.

RESULTS: In process

CONCLUSIONS: In progress

I **Validation of Local Pseudomonas aeruginosa Risk Factors in Patients with Community-Onset Bacterial Pneumonia** Room H

Presenters: Morgan Pizzuti

TITLE: Validation of Local Pseudomonas aeruginosa Risk Factors in Patients with Community-Onset Bacterial Pneumonia

AUTHORS: Morgan Pizzuti, Bailey Smith, Chao Cai, William Lindsey, P. Brandon Bookstaver, Joseph Kohn, Majdi Al-Hasan, Hana Winders, Julie Ann Justo

OBJECTIVE: To describe validation methods for local Pseudomonas aeruginosa risk factors in patients with community-onset bacterial pneumonia.

BACKGROUND: The international management guidelines for community-acquired pneumonia encourage development and validation of institutional treatment guidelines based on local risk factors. Previous research from our health system identified local risk factors for Pseudomonas aeruginosa in adult, hospitalized patients with community-onset bacterial pneumonia. The study demonstrated that individuals with bronchiectasis, interstitial lung disease, prior airway colonization with P. aeruginosa within the last 12 months, and recent exposure to beta-lactam antibiotics within the last 3-30 days had a greater risk of P. aeruginosa pneumonia. Our institution developed local pneumonia treatment guidelines focusing on use of empiric antibiotics for patients with risk factors for P. aeruginosa. The aim of this study was to validate the local P. aeruginosa risk factors in patients with community-onset bacterial pneumonia.

METHODOLOGY: This was a retrospective, observational cohort study. Patients were screened from reports of respiratory specimens and admissions with MS-DRG codes associated with pneumonia between January 1, 2017 to March 31, 2020. Enrolled subjects were adult patients aged ≥ 18 years, admitted to Prisma Health Richland, Baptist, or Baptist Parkridge hospital campuses with: a diagnosis of pneumonia, receipt of inpatient antibiotic therapy within 48 hours after pneumonia symptom onset, and receipt of >48 hours of antibiotic therapy. Patient comorbidities, culture results, antibiotic therapy, and acute severity of illness were collected. Statistical analyses include sensitivity, specificity, positive and negative predictive value, overall accuracy and over and under treatment proportion.

CONCLUSION: Our local risk score had a modest performance with 78% overall accuracy. Our local guideline concordance increased from the pre-implementation to the post-implementation period as well as our bacterial diagnostic testing use. Future directions include prescriber education and optimization of clinical informatics.

L Pharmacist-Led Medication Reconciliation Process Improvement in a Community Hospital General Medicine Unit Room E

Presenters: Benjamin Tutterow

Title: Pharmacist-Led Medication Reconciliation Process Improvement in a Community Hospital General Medicine Unit

Authors: Benjamin Tutterow, PharmD, MSCR; Dustin Bryan, PharmD, BCPS; Susan Canady, PharmD; Melissa Steedly, PharmD; Savannah Knepper, PharmD, BCPS

Purpose/Background: Multiple studies and systematic analyses have demonstrated the importance of an accurate medication reconciliation. Cape Fear Valley Medical Center (CFVMC) is a 691 bed acute care academic medical center employing 6 emergency department pharmacy technicians responsible for conducting all medication reconciliations. Despite these services, there are still patients admitted who do not have a proper medication reconciliation completed prior to their admission to the floor, where the registered nurse is responsible for conducting the medication reconciliation. Pharmacists can be especially beneficial in conducting medication reconciliations, as they have been trained to analyze the patient to gain a comprehensive understanding of the treatment regimen, thus equipping them to make interventions when appropriate. The purpose of this study is to determine the value of a pharmacist-led medication reconciliation service at Cape Fear Valley Medical Center.

Methodology: Participants included in this study were adults 18 years of age and older admitted to a CFVMC general medicine unit. Included adult patients were admitted for 72 hours or less during the study period from October 1 to October 31, 2020 taking at least one scheduled medication prior to admission. The primary endpoint was the number of interventions related to medication reconciliation events conducted by a pharmacist. Secondary endpoints were types of interventions performed, amount of cost avoidance associated with each intervention, amount of time required to perform the medication reconciliation, and percentage of accepted interventions. Descriptive statistics were used to analyze the data of this study.

Results: 17 total interventions were performed and accepted over the study period involving 3 intervention subtypes; drug/disease (5), drug/dose (4), and drug/drug (1). Overall cost avoidance was \$19000, mean time to perform the medication reconciliation was 21.2 minutes, and 58.8% of interventions were accepted.

Conclusions: Pharmacist-led medication reconciliation resulted in few interventions, likely due to the study location and efficient emergency department pharmacy technicians. An inadvertent benefit in staff pharmacist workflow resulted from the use of documentation strategies developed in study.

O Evaluation of a Titration Protocol for Paclitaxel Infusions in the Gynecology Oncology Population Room A

Presenters: Jacob Calahan

TITLE: Evaluation of a Titration Protocol for Paclitaxel Infusions in the Gynecology Oncology Population

AUTHORS: Jacob Calahan, Allison Guyton

OBJECTIVE: Describe the rationale for titrating initial paclitaxel infusions and the impact a titration has on the incidence of infusion-related reactions.

SELF ASSESSMENT QUESTION: Does titrating paclitaxel decrease the incidence of infusion-related reactions?

BACKGROUND: The purpose of this study is to implement a titration protocol for initial cycles of paclitaxel for gynecology oncology patients in order to reduce the incidence of infusion reactions.

METHODOLOGY: A retrospective chart review included 206 encounters among 97 adult patients treated with carboplatin or paclitaxel. All encounters occurred from July 1, 2019 through December 31, 2019 and only included patients with a gynecologic malignancy. Data collection included demographics, comorbidities, chemotherapy regimen, and history of malignancy. Information on reactions was collected through documentation within the EHR, which included symptoms, management of reaction, and re-initiation of chemotherapy when applicable. A paclitaxel titration protocol was designed based on a literature review and an anonymous survey of oncology nurses. The protocol was approved by gynecologic oncologists, clinical oncology pharmacists, and oncology nurses. Nurses and pharmacists at our infusion center were educated on the titration protocol. The titration is being utilized during the first two cycles. Following implementation, data is being collected to assess the impact of titration on the incidence of infusion reactions.

RESULTS: Prior to protocol implementation, the overall incidence of paclitaxel-related infusion reactions was 12.1% (14/106). Each paclitaxel-related infusion reaction occurred during cycle 1 (N = 12, 85.8%) or cycle 2 (N = 2, 14.2%). Thus, the incidence of reaction to paclitaxel among cycle 1 and 2 was 24.6% (14/57). The protocol was implemented on February 8, 2021. Although post-protocol data is being collected, 8 weeks of data demonstrate infusion-related reactions to paclitaxel during all cycles and the first 2 cycles have decreased to 4.8% (2/42) and 8.3% (2/24), respectfully. Results for post-protocol implementation are pending.

CONCLUSIONS: In Progress

Presenters: Leanna Borges

TITLE: Assessment of Insulin Utilization for Early Post-transplant Glycemic Control in Liver Transplant

AUTHORS: L Borges, K Gutierrez, J Banbury, T Sparkman

OBJECTIVE: Describe the factors associated with requiring insulin after liver transplant

SELF ASSESSMENT QUESTION: What are some risk factors for requiring insulin after liver transplant?

BACKGROUND: Transient hyperglycemia after liver transplant (LT) is common due to the use of high-dose steroids at the time of transplant, but some patients may progress to true diabetes mellitus (DM). The purpose of this study is to assess insulin prescribing practices after LT and categorize the duration of insulin use in patients with no prior history of DM.

METHODOLOGY: This study is a single-center, retrospective cohort analysis of liver transplant recipients between July 1, 2018 to June 1, 2019 at the University of Alabama at Birmingham Hospital. The primary outcome is the proportion of patients without prior history of DM who were discharged on insulin and required insulin at 3 months post-discharge

RESULTS: A total of 107 patients were included in the preliminary analysis. Approximately 18% of patients were on an antidiabetic medication prior to LT. At discharge, 18 patients without a history of DM were prescribed insulin after LT. Of these patients, 26.7% required insulin at the 3 month follow-up. Twelve months after discharge, four remained on insulin.

CONCLUSIONS: The results of this study suggest that the majority of patients with no prior history of DM do not require long-term insulin therapy after LT. Of note, the use of oral antidiabetic medications in this study was low warranting further exploration regarding the benefit of these agents in this population.

Presenters: Priscilla Burgess

TITLE: Impact of Pharmacist-led Comprehensive Medication Reviews in a Geriatric and Palliative Care Pharmacy Service

AUTHORS: Priscilla Burgess, Melissa Pendoley, Jasmine Peterson, Suzanne Booth

OBJECTIVE: Determine the number of medication changes made per Geriatric or Palliative Care Pharmacy Service comprehensive medication review (CMR) within Kaiser Permanente Georgia (KPGA).

SELF ASSESSMENT QUESTION: What types of interventions can pharmacists make during Geriatric or Palliative Care CMRs?

BACKGROUND: Clinical pharmacy specialists (CPS) are well positioned to provide optimal patient care through completion of CMRs. Geriatric and palliative care patients are vulnerable to medication-related problems due to polypharmacy. The Geriatrics and Palliative Care Clinical Pharmacy Service at KPGA completes CMRs prior to initial consultation appointments with providers. The purpose of this study is to assess the number of medication changes made per CMR as a result of CPS intervention to guide future changes to workflow.

METHODOLOGY: This cross-sectional study includes KPGA members that received a CMR from a Geriatric and Palliative Care CPS between July 1, 2019 and December 31, 2019. Members were excluded if the CMR was completed by a pharmacy resident or if the CMR took place after the Geriatric or Palliative Care consultation appointment. The primary outcome is the number of medication changes made per Geriatric or Palliative Care CMR. Secondary outcomes include the method of medication change, the recommendation acceptance rate, the type of medication change made, and the acceptance rate of each type of intervention.

RESULTS: A total of 30 Geriatric CMRs and 30 Palliative care CMRs were reviewed. Approximately 8 medication changes were made per Geriatric or Palliative Care CMR, 7 of which were per collaborative practice agreement and 1 of which was by recommendation to provider. Approximately 2 recommendations were sent to provider per CMR, of which almost 34% were accepted.

CONCLUSIONS: Overall, the majority of medication changes made were per collaborative practice agreement. Greater than one-third of recommendations sent to providers were accepted.

Impact of pharmacist-led comprehensive medication reviews in a geriatric and palliative care pharmacy service from Priscilla Burgess on Vimeo.

B IMPACT OF VIRTUAL PHARMACIST INTERVENTION ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ADMISSION RATES FOR EXACERBATIONS

Room J

Presenters: Kelsey Cumbass, PharmD

TITLE: IMPACT OF VIRTUAL PHARMACIST INTERVENTION ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ADMISSION RATES FOR EXACERBATIONS

AUTHORS: Kelsey Cumbass, Nathaniel Swanson, Deborah Hobbs

OBJECTIVE: Describe the purpose of implementing a virtual pharmacist-led COPD clinic and the possible outcomes of such implementation.

SELF ASSESSMENT QUESTION: What are the limitations of implementing a virtual pharmacist-led COPD clinic?

BACKGROUND: Approximately 16 million Americans have been diagnosed with COPD and millions more suffer without a formal diagnosis. COPD was the fourth leading cause of death in the United States in 2017 and the second most common cause of admission for an ambulatory care sensitive condition (ACSC) from 2018-2019. The ACSC Observed/Expected (O/E) ratio for COPD measures the actual hospitalizations for ACSC divided by the predicted number of hospitalizations. The COPD ACSC O/E admission ratio for CVVAMC from January to March 2019 was above the national average (1.0) at 1.26 indicating the facility has seen more hospitalizations due to COPD than expected. The COVID-19 pandemic has posed new challenges in conducting necessary face-to-face clinic visits while weighing the risks of potentially exposing high-risk patients to the virus in the process. Therefore, the purpose of this study is to implement a virtual pharmacist-led COPD clinic and determine if this will decrease both the O/E ratio and the number of hospitalizations due to COPD exacerbations.

METHODOLOGY: This quality improvement project was approved by the Pharmacy and Therapeutics committee in September 2020. Veterans were identified by the intelligent preventative care database based on their ACSC risk score. This database identifies Veterans who are higher risk than 95% of the facility patients for COPD admission. Eligible Veterans' charts were reviewed, and the Veterans were contacted by either telephone or video call. A custom COPD template was utilized, and progress notes were recorded into the computerized patient record system. Initial visits began taking place November 2020. Virtual follow-up visits were conducted at four weeks and twelve weeks from initial intervention in order to reassess the Veteran's COPD management to include inhaler technique, smoking status, and vaccination status post-intervention.

RESULTS: As presented.

CONCLUSIONS: As presented.

C Optimizing Direct Oral Anticoagulant (DOAC) therapy using a patient population management tool: A quality improvement project

Room D

Presenters: Jenna Sewell

TITLE: Optimizing Direct Oral Anticoagulant (DOAC) therapy using a patient population management tool: A quality improvement project

AUTHORS: Jenna Sewell, Frances Hoffman, Morgan Tolley, Nidia Edwards, Mary Anne Ford, Tiffany Jagel

OBJECTIVE: Address patients flagged through the DOAC Dashboard due to meeting specified criteria outside the recommendations for DOAC use.

SELF ASSESSMENT QUESTION: Which metric(s) can be used to evaluate whether DOAC use is safe and effective?

BACKGROUND: The purpose of this project is to determine the best course of action to ensure optimal patient safety and proper utilization of the DOAC Dashboard through improvement of internal standard operational procedures and policies.

METHODOLOGY: This project will look at all patients identified via the DOAC Dashboard from August 2020 to February 2021 requiring a possible intervention for active NSAID use, dosing, notable hemoglobin, platelets or liver function tests, critical drug interactions, bariatric surgery, or valve replacement. Each anticoagulation Clinical Pharmacy Specialist (CPS) will document the type of flag, intervention recommended, and time spent. Data on the type of flag, the number of flags addressed, and the rate of interventions initiated will be collected using Excel and descriptive statistics will be used to evaluate measures.

RESULTS: A total of 448 flags on the DOAC Dashboard were addressed by CPSs between the months of August and December 2020. Of the total number of flags addressed, 41% were identified by CPSs as requiring intervention.

DOAC dosing issues and active NSAID use with a DOAC represented 47% and 27% of the flags addressed, respectively. The average amount of time spent to address the flags was around 13 minutes.

CONCLUSIONS: CPSs were able to address the minimum requirement of 5 DOAC Dashboard flags per week. The number of flags trended down for most metrics with the exception of dosing flags and notable hemoglobin, platelets, and liver function tests, for which the rate of flags being added to the dashboard may be faster than the rate at which the flags are addressed. A defined update to the plan to address flags would be needed to ensure that all flags can be addressed in a timely manner moving forward.

Presenters: Jeffery Lo

Title: Outcomes in Renal Transplant Patients with COVID-19

Authors: Jeffery Lo, Kayla Nichols, Jolie Gallagher, Sara Gattis, Arpita Basu

Objective: Describe the mortality rate of critically ill renal transplant patients with COVID-19

Self Assessment Question: Which critically ill population had the highest mortality rate?

Background: Many studies regarding COVID-19 infections in renal transplant patients are case reports and small-scale reviews focused on the management of infection; less data is available regarding mortality rate and risk factors for developing severe disease and death. The purpose of this study is to compare the mortality rate of critically ill renal transplant patients with COVID-19 infection to other critically ill patient populations with COVID-19 infection.

Methodology: This is a retrospective chart review performed at Emory Healthcare from 03/01/2020 – 08/31/2020.

Renal transplant patients were compared with other solid organ transplant (SOT), immunocompromised, and non-immunocompromised patients. The primary outcome is in-hospital mortality. Secondary outcomes include hospital and intensive care unit (ICU) length of stay, changes in immunosuppression, new thrombotic/bleeding events, rate of concurrent infections, rate of renal replacement therapy, loss of allograft in SOT, and readmission rate.

Results: Mortality rates were 66.7%, 25%, 33.3%, and 20% for renal transplant, other SOT, immunocompromised, and non-immunocompromised patients, respectively. There was a significant difference in rates between renal transplant and non-immunocompromised patients ($p = 0.014$) and between renal transplant patients and patients of all other groups combined ($p = 0.0084$). There were also significant differences in length of stay, changes in immunosuppression, renal replacement therapy, and mechanical ventilation.

Conclusions: Critically ill renal transplant patients with COVID-19 had a higher observed mortality rate than all other groups in this study.

YouTube Link: <https://youtu.be/DMoS6zyE9sk>

Presenters: Aaron Henslee

TITLE: Pharmacist driven quality improvement of intravenous alteplase use in ischemic stroke patients at a large community hospital

AUTHORS: Aaron Henslee, Nellie McKee, Jeremy Ray

OBJECTIVE: The objective of this project is to streamline the current process of administering alteplase in ischemic stroke patients at our facility, with the goal of reducing our facility's door to tPA time.

SELF ASSESSMENT QUESTION: Which of the following is/are contraindications to using intravenous alteplase in patients with ischemic stroke? a. Daily use of an oral anticoagulation agent b. A blood pressure of 198/122mmHg c. Recent intracranial bleeding d. All of the above

BACKGROUND: The objective of this project is to streamline the overall process of administering alteplase in ischemic stroke patients, with the goal of reducing our facility's door to tPA time.

METHODOLOGY: A retrospective chart review was performed on every stroke alert that was called at our facility's emergency department from June 2020 through December 2020 ($n = 497$). A early tPA mixing criteria was implemented April 7, 2021 for neurology nurse practitioners to use while assessing patients.

RESULTS: Of the 497 patients who were evaluated, eleven patients received tPA with an average door to tPA time of sixty three minutes.

CONCLUSIONS: In process. Data collection will continue through June 7, 2021.

Presenters: Justine Nurse-McLeod

TITLE: Integrating an Age-Friendly Health System Initiative into Geriatric Primary Care

AUTHORS: Justine Nurse-McLeod, Lawanda Kemp, Kimberly Manns, Anna K. Mirk

OBJECTIVE: Evaluate the impact of a geriatric-focused model of care on geriatric outcomes within a primary care setting

SELF ASSESSMENT QUESTION: Does routine clinical pharmacy specialist consultation within a geriatric primary care setting facilitate deprescribing of potentially inappropriate medications or reduction of polypharmacy?

BACKGROUND: Veterans in the United States comprise a population that is older and frequently requires more complex care than the general population. In order to better manage the unique health challenges and needs of older veterans, the Geriatric and Extended Care department at the Atlanta Veterans Affairs (VA) Health Care System adopted the 4Ms Framework, a set of evidence-based elements of high-quality care for older adults centered around four core components: What Matters, Medication, Mentation and Mobility.

METHODOLOGY: Study methods were adapted from Integrated Management and Polypharmacy Review of Vulnerable Elders (IMPROVE), an ongoing initiative developed by the Atlanta VA Geriatric Research, Education, and Clinical Center (GRECC) to improve medication management in older veterans using a pharmacist-led comprehensive medication management visit. Criteria for program inclusion included new referral for geriatric consultation within the Atlanta VA Geriatric Patient Aligned Care Team or Virtual Geriatrics service between August 24, 2020 and March 24, 2021. Aimed at ensuring the use of age-friendly medications, a geriatric clinical pharmacy specialist (CPS) conducted a comprehensive medication review to include medication reconciliation, evaluation of medication indication, safety and appropriateness and adherence and health literacy screenings, prior to the first visit with the geriatrician.

Recommendations were relayed via the electronic medical record. The primary project outcome was the number of medications reduced. Secondary outcomes included the number of potentially inappropriate medications (PIMs) discontinued, number of CPS recommendations made and identified barriers to adherence. Data was collated and analyzed using descriptive statistics and the paired Student's t-test.

RESULTS: In total, 29 veterans were identified for study inclusion between 8/24/20 and 3/24/21. The mean age was 78.2 (range 63-92) and an average of 12 (range 5-24) medications were being taken prior to CPS intervention. The primary outcome resulted in a mean reduction of 2 in the number of medications being taken (range 0-8). The mean number of PIMs reduced was 1.1 (range 0-6). An average of 1.7 (range 0-3) barriers to adherence were identified and the mean number of medication changes recommended by the CPS was 1.7 (range 0-5).

CONCLUSIONS: Among older veterans receiving care in a geriatric outpatient setting, integration of the 4Ms Framework, with a focus on medication safety by a geriatric CPS, resulted in identification of barriers to adherence and an overall reduction in polypharmacy and PIMs.

Video Link: https://drive.google.com/file/d/1B4A2BwTt_o5GpD9HUuSELaDiPHapK8Y/view?usp=sharing

Presenters: Cassandra Henry

TITLE: Comparison of in-hospital mortality in COVID-19 patients treated with tocilizumab

AUTHORS: Cassandra Henry, Geren Thomas, Daniel Chastain, Maura Hall

OBJECTIVE: Describe the impact of tocilizumab on in-hospital mortality in patients age < 45 years, 45 – 64 years, and ≥ 65 years.

SELF ASSESSMENT QUESTION: Among the patients in this study, which age group has the highest in-hospital mortality rate after treatment with tocilizumab?

BACKGROUND: Assess the effect of tocilizumab on mortality among different age groups of patients with COVID-19

METHODOLOGY: This study is a single center, retrospective chart review performed at a community hospital. Patients with laboratory confirmation of SARS-CoV-2 infection and a COVID-19 diagnosis who received at least one dose of intravenous tocilizumab between April 1, 2020 and August 31, 2020 were included. Patients were excluded from this study if they received tocilizumab for an indication other than COVID-19. The primary outcome of the study is the rate of in-hospital mortality among patients ages < 45 years, 45 – 64 years, and ≥ 65 years. Secondary outcome measures include the rate of intubation after dose administration, time from last dose administration to discharge, and hospital length of stay. Data was analyzed using descriptive statistics.

RESULTS: 99 patients were included in the study with 10 patients < 45 years, 48 patients 45 – 64 years, and 41 patients ≥ 65 years. Baseline characteristics were similar among the three groups with exceptions. The in-hospital mortality rate was 38% in the 45 – 64 years group compared to 20% and 32% in the < 45 years and ≥ 65 years groups respectively. 16% of patients were intubated after dose administration, and the median time to discharge and hospital LOS were lowest in the < 45 years age group.

CONCLUSIONS: The in-hospital mortality rate was highest among patients in the 45 – 64 years age group. These findings were likely due to differences in disease severity and pharmacologic standard of care.

I Impact of combination therapy and other risk factors on outcomes in persistent MRSA bloodstream infections

Room H

Presenters: Erin Bendock

TITLE: Impact of combination therapy and other risk factors on outcomes in persistent MRSA bloodstream infections
 AUTHORS: Erin Bendock, PharmD; Mahmoud Shorman, MD; Laurence Wright, PharmD; Samantha Yeager, PharmD, BCPS; Michael Veve, PharmD, MPH

OBJECTIVE: Discuss combination therapy and other modifiable risk factors that may impact patient outcomes.

SELF ASSESSMENT QUESTION: What effect on patient outcomes was observed in patients who received combination therapy?

BACKGROUND: Combination methicillin-resistant *Staphylococcus aureus* (MRSA) therapy is often utilized in complicated MRSA bloodstream infections (BSIs) with persistently positive cultures, though there is limited published literature regarding optimal timing of initiation, duration of combination, and patient selection. The objective of this study was to identify risk factors for clinical failure in patients with persistently positive MRSA BSIs, with a focus on combination anti-MRSA therapy.

METHODOLOGY: Retrospective cohort evaluated adult hospitalized patients with complicated MRSA BSIs from 1/2016-7/2020. Additional inclusion criteria were: positive MRSA blood cultures >3 days, receipt of anti-MRSA therapy ≤48 hours of bacteremia identification. Exclusion criteria: lack of repeat blood cultures drawn or polymicrobial BSI.

The primary endpoint was a composite of 90-day clinical failure: infection-related readmission, relapse of infection, or all-cause mortality. The exposure of interest was combination anti-MRSA therapy.

RESULTS: 193 patients were included: 83 (43%) experienced 90-day clinical failure, 110 (57%) did not. Baseline characteristics were comparable between groups; the median (IQR) age was 46 (35-59) years, 60% were men, and 52% reported active or a history of injection drug use. The most common infection types were: endocarditis (43%), bone/joint (29%), skin (12%), and other (18=7%). Combination anti-MRSA therapy was used in 72 (37%) patients and initiated a median (IQR) 7.6 (5.4-10.3) days from initial positive culture; the most common regimen was daptomycin with ceftaroline (46, 64%). 32 (45%) of patients who received combination anti-MRSA therapy were prescribed this therapy for the remainder of the treatment course. There was no significant difference in 90-day clinical failure in patients who received combination anti-MRSA therapy compared to those who did not (44% vs. 42%, P=0.72).

Patients that received combination therapy had a significantly faster median (IQR) time to culture clearance compared to those who received monotherapy (11 [9-16] days vs. 7 [5-9] days, P<0.001).

L Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

Room E

Presenters: Kristin C. Davis, PharmD, MBA

TITLE: Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

AUTHORS: Kristin Davis, Lindsay Reulbach, John Schrank, Alex Ewing, Emily Johnson

OBJECTIVE: Identify the outcomes of patients with variceal bleeding treated with less than 7 days of antibiotics for the prevention of SBP

SELF ASSESSMENT QUESTION: True or False: Less than 7 days may be a reasonable duration of antibiotics for the prevention of SBP in variceal hemorrhage

BACKGROUND: Spontaneous bacterial peritonitis (SBP) is a serious complication of variceal gastrointestinal hemorrhage. The American Association of the Study of Liver Diseases (AASLD) recommends a maximum of 7 days of antibiotics after a variceal hemorrhage to prevent SBP; however, recent studies have suggested shorter durations of prophylactic antibiotics. The objective of this study was to determine if less than 7 days of antibiotic prophylaxis is noninferior to 7 or more days in patients with cirrhosis and upper gastrointestinal bleeding (UGIB).

METHODOLOGY: This study was a single-center, retrospective cohort conducted from August 2019 to August 2020 that included patients who received treatment for upper gastrointestinal bleeding (UGIB) due to variceal hemorrhage and antimicrobial therapy for prevention of SBP during hospitalization. The primary outcome was in-hospital mortality. Secondary outcomes included SBP within the first 30 days after UGIB, 30-day mortality, 30-day readmission rate, incidence of rebleeding at 7 and 30 days, incidence of *Clostridioides difficile* infection, and intensive care unit and hospital length of stay.

RESULTS: In Progress

CONCLUSIONS: In Progress

N Effect of cannabidiol (Epidiolex®) on seizure related emergency department (ED) visits and hospital admissions

Room F

Presenters: Aaron Michael Chase

TITLE: Effect of cannabidiol (Epidiolex®) on seizure related emergency department (ED) visits and hospital admissions

AUTHORS: Aaron Chase, Olubusola Fowowe, Renad Abu-Sawwa

OBJECTIVE: Discuss effect of cannabidiol on seizure-related ED visits and hospital admissions in patients at our institution.

SELF ASSESSMENT QUESTION: What are the FDA approved indications for Epidiolex?

BACKGROUND: Intractable seizure disorders are common and lack many effective treatment options. Many have poor outcomes and patients frequently utilize healthcare resources. Cannabidiol was recently approved for use in some intractable seizure syndromes and provides a highly effective treatment option. There is no data on how cannabidiol effects healthcare utilization. Our aim was to determine how cannabidiol effects seizure-related hospital admissions and ED visits.

METHODOLOGY: Methods: This single center retrospective cohort study included patients >1 year old and excluded those who participated in a clinical trial of cannabidiol or were on therapy

P Impact of clozapine complete blood count (CBC) monitoring overrides on adverse effect rates during COVID-19

Room G

Presenters: Ashley Glass

TITLE: Impact of clozapine complete blood count (CBC) monitoring overrides on adverse effect rates during COVID-19

AUTHORS: Ashley Kang Glass and Hannah E. Rabon

OBJECTIVE: To describe the impact on medication safety and efficacy when dispensing clozapine without standard lab monitoring during COVID-19.

SELF ASSESSMENT QUESTION: Did extended lab monitoring impact the frequency of clozapine associated adverse events?

BACKGROUND: As part of the Risk Evaluation and Mitigation Strategy (REMS) requirement to prescribe clozapine, providers must obtain a CBC either weekly, bimonthly, or monthly depending on length of treatment. This project evaluated the impact of a national REMS override allowing certified prescribers to dispense clozapine without standard lab monitoring during the COVID-19 pandemic.

METHODOLOGY: Medical charts of Veterans prescribed clozapine from March 1, 2020 – December 1, 2020 were reviewed to determine if patients received a lab override due to COVID-19. Patient-specific characteristics and the frequency of adverse events such as neutropenia, infections, emergency-department (ED) visits, and hospitalizations were collected. Incidence of events were reported from the time of the first monitoring override to present and compared to incidence rates in the year prior to the first override. Significant changes in frequency of adverse events were determined using matched-pairs tests.

RESULTS: All Veterans prescribed clozapine (n=11) received overrides to extend therapeutic monitoring. The average monitoring frequency was 15 weeks. Therapy was primarily managed by psychiatric pharmacists through telephone appointments. Patient-specific characteristics did not appear to influence override decisions. Extended monitoring intervals did not result in significant changes in rates of ED visits, medical or psychiatric hospitalizations, infections, or neutropenia.

CONCLUSIONS: There were no significant differences in the rate of adverse outcomes between REMS recommended monitoring and extended monitoring. These safety and efficacy results will help inform ongoing clozapine prescribing and monitoring practices during the COVID-19 pandemic and beyond. Conclusions are limited by the study's small homogenous population. Future research could include data-pooling across healthcare systems that implemented CBC overrides to confirm these results.

Presenters: Erin Sherwin

TITLE: Impact of Dashboard Utilization on Recombinant Zoster Vaccination Rates

AUTHORS: Erin Sherwin, PharmD, Courtney Berg, PharmD, Kendra Brookshire, PharmD

OBJECTIVE: Describe how monitoring patients via a dashboard can assist in closing vaccination gaps.

SELF ASSESSMENT QUESTION: What are important factors to consider in immunization documentation?

BACKGROUND: Assess the use of a dashboard to close immunization gaps for patients who have received the first dose of the recombinant zoster vaccine.

METHODOLOGY: We conducted retrospective chart review of electronic medical records via a dashboard of patients in a primary care clinic who have received at least one documented dose of the recombinant zoster vaccine (RZV) prior to 11/30/2020. Charts were reviewed for process vulnerabilities such as lack of documented receipt of any dose in the series. Nurses and providers were educated on best practices for vaccine ordering and documentation using the RZV clinical reminder tool in the Computerized Patient Record System (CPRS). Medical support assistants (MSAs) were then instructed to schedule patients due or overdue for the second dose of the series. The number of patients with documented completed RZV immunization series prior to examining the dashboard will be compared to the number with documented completed series after.

RESULTS: Research is currently ongoing. Through review of the dashboard, 266 patients were identified in a primary care clinic who have received at least one dose of RZV and 153 patients noted as due for a second dose as of 11/30/2020. 129 were overdue to complete the series being more than 6 months out from the date of receiving the first dose. 19 patients had follow-up appointments in the blue clinic scheduled as detected by the dashboard. After chart review, 13 patients were identified who were flagged as due for the second dose by the dashboard but who had in fact completed the series due to missing documentation of one dose. The remaining patients who had not completed the series were originally scheduled for appointments with primary care within 6 months, but due to precautions taken to mitigate the spread of COVID-19, those appointments were converted to telehealth appointments. Implementation of dashboard monitoring to close immunization gaps is ongoing.

CONCLUSIONS: Dashboard monitoring of multi-dose series immunizations could help ensure patients receive doses of vaccines on schedule and prevent illness.

Presenters: Abigail Wiggins

TITLE: Implementation of a Clinical Decision Support Tool for the Treatment of Hypertension in a Family Medicine Clinic

AUTHORS: Abigail Wiggins, PharmD, MPH; Rebeca Higdon, MPH; Julie Jeter, MD; Shauntá Chamberlin, PharmD, BCPS, FCCP

OBJECTIVE: Assess the impact of a new clinical decision support tool (CDS) on appropriateness of hypertension management.

BACKGROUND: Nearly half of adults in the United states have blood pressures that constitute a hypertension diagnosis. A large percentage of patients with hypertension are not on any pharmacotherapy and many are on inappropriate or inadequate regimens. The purpose of this study is to assess the impact of a clinical decision support (CDS) tool on adherence to guideline directed hypertension management. The CDS tool provides guidance for hypertension pharmacotherapy initiation and continuing management.

METHODOLOGY: This study is a pre- and post-implementation, cross-sectional review of adult patients seen in Family Medicine clinic prior to and following implementation of the hypertension CDS tool. Pre-implementation data collection was conducted for patients with hypertension in their problem list seen January 2020- February 2020. Post-implementation data collection was conducted for patients with hypertension in their problem list seen January 2021- February 2021. Resident, faculty, and nursing education was provided prior to CDS tool implementation to ensure understanding of the tool and integration into practice. Descriptive statistics will be utilized to characterize prescribing trends.

LINK: <https://youtu.be/kO6piBISQkg>

Presenters: Lydia McKay

Title: Impact of RAS Agent Management on Vasoplegia during Cardiac Surgery

Authors: Lydia McKay, Marc Reichert, Monty Yoder

Presentation Objective: Understand the impact of RAS agents on the rate of vasoplegia in patients undergoing cardiac surgery.

Self-Assessment: Should RAS agents be held at least 48 hours before cardiac surgery to lower the rate of vasoplegia?

Background/Purpose: Agents affecting the renin angiotensin system (RAS) have been documented to be a risk factor for vasoplegia in patients undergoing cardiopulmonary bypass surgery, though optimal pre-operative management remains unclear. This study assessed the relationship between the time of discontinuation of RAS agents and the incidence of vasoplegia after cardiac surgery.

Methodology: This project was a single center, retrospective, cohort study designed to determine if time of discontinuation of RAS agent before cardiac surgery has an impact on the incidence of vasoplegia. Using the Wake Forest Baptist Medical Center (WFBMC) cardiothoracic surgery database, a comprehensive list of high risk cardiopulmonary bypass surgeries at WFBMC between January 2018 and December 2020 was obtained and screened for study eligibility. Demographic data (patient age, gender, weight, height, and ethnicity) and baseline characteristics (surgery type, case posting, patient baseline ejection fraction, bypass time, cross-clamp time, deep hypothermic circulatory arrest time, first recorded mean arterial pressure (MAP) in the operating room, RAS agent prior to surgery and RAS agent discontinuation time) were obtained. Stop dates of the RAS agent were determined using the pre-surgery admission medication reconciliation, surgery clinic notes and inpatient medication administration record. The primary endpoint was the rate of vasoplegia in each group, defined as patients with a MAP of less than 65 mmHg requiring at least 10 mcg/minute of norepinephrine and 0.03 units/minute of vasopressin in the operating room or 24 hours post-surgery.

Results: Patients with a RAS agent held 48 hour prior to surgery had a 16.8% incidence of vasoplegia compared to 14.3% of patients with a RAS agent held less than 48 hours before surgery (P= 0.64)

Conclusions: Discontinuing a RAS agent 48 hours before cardiopulmonary bypass surgeries does not appear to have a significant impact on the incidence of vasoplegia

Link to presentation: <https://www.youtube.com/watch?v=QEQpNWbwhtg>

Presenters: Tabitha Brown

TITLE: Effectiveness of a treatment pathway for the management of febrile neonates in the emergency department of an academic children's hospital

AUTHORS: Tabitha Brown, Renee Hughes, Andrea Gerwin

OBJECTIVE: Identify the recommended initial antibiotics and dose selection for the empiric treatment of febrile neonates.

SELF ASSESSMENT QUESTION: What is the recommended initial meningitic dose of ampicillin to empirically treat temperature labile neonates?

BACKGROUND: Emergency departments use evidence-based treatment pathways to guide clinicians in the use of diagnostic testing and standardize treatment of febrile neonates. The purpose of this study was to evaluate the initial management of neonates presenting to the emergency department with temperature instability, implementation of an institution specific treatment pathway, and to review the use of recommended antibiotics, meningitic doses, and available diagnostic testing.

METHODOLOGY: This is an Institutional Review Board approved, single center, retrospective, observational study performed at an academic children's hospital. Chart review was utilized to identify patients aged 28 days or younger with temperature instability by history before arrival or measured in the emergency department during triage. This study compares management of febrile neonates pre-implementation (August to December 2019) and post-implementation (August to December 2020) of the treatment pathway at the study institution.

R High-dose heparin versus weight-adjusted low-molecular weight heparin for venous thromboembolism prophylaxis in critically ill obese patients

Presenters: Amanda Seals

TITLE: High-dose heparin versus weight-adjusted low-molecular weight heparin for venous thromboembolism prophylaxis in critically ill obese patients

AUTHORS: Amanda Seals, Emily Bowers, Eric Shaw, Audrey Johnson

OBJECTIVE: The objective of this study is to determine the effectiveness of VTE prevention between high-dose heparin and weight-adjusted low-molecular-weight heparin in critically ill obese patients.

SELF ASSESSMENT QUESTION: Is there a difference in efficacy between high-dose heparin and weight-adjusted low-molecular-weight heparin for the prevention of VTE in critically ill obese patients?

BACKGROUND: Hospitalized patients are at an increased risk of venous thromboembolism (VTE) with obesity being an additional substantial risk factor. Heparin and low-molecular-weight heparin (LMWH) are both used for VTE prophylaxis in critically ill patients. Heparin 7,500 units subcutaneous every 8 hours or LMWH 0.5 mg/kg/day are used in obese patients for VTE prophylaxis. There is currently limited evidence for a preferred regimen or optimal dose adjustments in obese patients.

METHODOLOGY: This was a single-center, retrospective, institutional review board approved study conducted from July 30, 2015 – January 24, 2021. Adult obese patients who received high-dose heparin (7500 units every 8 hours) or weight-adjusted LMWH (0.5 mg/kg/day) were eligible for study inclusion. Exclusion criteria included pregnant patients, incarcerated persons, patients with clotting disorders, trauma patients, orthopedic patients, and CoVID-19 positive patients. The primary outcome was incidence of VTE during hospital stay. Secondary outcomes included hospital length of stay, hospital mortality, and bleeding. Subgroups included admitting ICUs (medical ICU, surgical ICU, or cardiovascular ICU) and patients with a BMI > 50.

RESULTS: There was a total of 1602 patients screened and 94 patients met inclusion criteria. Of this sample, 47 patients were included in the heparin group and 47 patients were included in the LMWH group. No significant difference in the incidence of VTE was noted between groups: 2 (4%) patients in the high-dose heparin group versus 1 (2%) in the weight-adjust LMWH group ($p=1$). There was no significant difference in the length of stay, hospital mortality, and bleeding between groups. The incidence of VTE did not differ between groups based on ICU subgroup or within patients with a BMI > 50.

CONCLUSIONS: There was not a significant difference in the incidence of VTE between high-dose heparin and weight-adjusted LMWH in this obese critically ill population. <https://youtu.be/0Qb1HKeXZxY>

Presenters: Autumn N. Neff

TITLE: Pharmacy Student Attitudes towards a Career in Older Adult Care

AUTHORS: Autumn N. Neff, PharmD, MBA, CPP; Tasha Woodall, PharmD, BCGP, CPP; Mollie Scott, PharmD, BCACP, CPP; Shannon Rice, PharmD, BCGP

OBJECTIVE: Determine why current pharmacy students are or are not interested in pursuing a career or post-graduate training in geriatric and what influences this.

INTRODUCTION: The United States is facing a rapid rise in the number and proportion of older adults comprising its general population. The workforce prepared to meet the challenges of the aging populace, however, is stagnating or even decreasing. An additional 24000 geriatricians will be required nation-wide by 2030 to meet the healthcare needs of older adults. Further, for the 2020 appointment year, only half of geriatric medicine fellowship positions were filled, and currently, there is limited assessment of the influences contributing to future physicians' attitudes towards careers specialized in older adult care. While Geriatric Post-Graduate Year 2 (PGY2) trained pharmacists could help to extended specialty services for the older adult population, fewer than 30 geriatric pharmacy residency programs are currently available. Previous studies have assessed pharmacy students' attitudes toward older adults, an evaluation of the factors that inform or predict students' interest in pursuing a career in geriatrics has not been published. The primary purpose of this study is to examine the reasons that current pharmacy students are interested or not interested in pursuing a career or post-graduate geriatrics training, and to evaluate factors that influences this.

METHODS: This is a prospective, qualitative research study designed with two phases. The first phase consisted of 60-90 minute focus groups including 3-5 participants from all years of the Doctor of Pharmacy curriculum spanning both campuses of the UNC Eshelman School of Pharmacy. Participants were split into two groups: those who self-declared as interested vs. not interested in a career or post-graduate training in geriatrics. Each discussion was audio recorded and subsequently transcribed, extracting key themes on which to base a survey tool through open thematic coding. Phase two will consist of electronically distributing the survey to a wider base with students at accredited schools of pharmacy in North Carolina as well as Monash University in Melbourne, Australia. Descriptive statistics were utilized to characterize responses, including counts and percentages for categorical variables and median with interquartile range for continuous variables.

RESULTS: Focus group discussion were completed with 8 students. Open thematic coding revealed an identified need, increased clinical acuity, a give and take profession, and past positive experiences as key themes influencing students to pursue a career or post-graduate training in geriatrics. The emotional impact of working with older adults, potential for career limitations, navigating age differences, and difficulty communicating with older adults were identified as factors influencing students away from older adult care. Factors identified as both influencing students to pursue or not to pursue a career or post-graduate training in geriatrics were heightened professional liability and inadequate geriatric exposure.

CONCLUSIONS: Identified need, increased clinical acuity, and past positive experiences were the most common factors influencing students towards a career or post-graduate training.

SELF ASSESSMENT QUESTION: Which of the following was not found to contribute to a pharmacy student's attitude towards a career in older adult care?

LINK TO PRESENTATION: [https://static.sched.com/hosted_files/2021southeasternresidency/05/SERC Presentation - Student Attitudes - Autumn Neff.mp4](https://static.sched.com/hosted_files/2021southeasternresidency/05/SERC_Presentation_-_Student_Attitudes_-_Autumn_Neff.mp4)

I **Comparison of Vancomycin Trough versus Area under the Curve Monitoring in Hospitalized Adult Patients**

Room H

Presenters: Kylie Black

TITLE: Comparison of Vancomycin Trough versus Area Under the Curve Monitoring in Hospitalized Adult Patients

AUTHORS: Kylie Black, NaaDede Badger-Plange, Kristin Horton, Natalie Morgan, Todd Parker, Reena Patel

OBJECTIVE: To determine the relationship between steady-state vancomycin troughs and estimated AUC using Bayesian software.

SELF ASSESSMENT QUESTION: Do steady-state vancomycin troughs of 10-20 mg/L correlate with the recommended target AUC of 400-600 mg*hour/L?

BACKGROUND: The 2020 vancomycin consensus guidelines identify area under the curve to minimum inhibitory concentration (AUC/MIC) as the most appropriate target for vancomycin. Many hospitals utilize steady-state trough concentrations as a surrogate marker for AUC, though this approach has fallen out of favor. The purpose of this study was to compare vancomycin steady-state troughs to estimated AUC values using Bayesian software.

METHODOLOGY: This was a retrospective chart review of adult patients admitted to Piedmont Atlanta Hospital from August-November 2020 who received intravenous vancomycin and had appropriately drawn steady-state troughs. The primary endpoint was to compare the average trough associated with a target AUC of 400-600 mg*hour/L to the standard trough target of 10-20 mg/L. Secondary endpoints included number of patients with a target AUC who had increases in vancomycin dose, average AUC associated with target trough concentrations, and comparison of average troughs and AUC in patients who developed acute kidney injury (AKI).

RESULTS: Sixty-seven patients were included and 83 troughs evaluated. The average trough associated with a target AUC of 400-600 mg*hour/L was significantly lower than the average trough within the standard target of 10-20 mg/L (11.3 vs. 14.6, p=0.00003). Nineteen of 33 patients (57.6%) with an estimated AUC of 400-600 mg*hour/L had potentially unnecessary increases in vancomycin dose. Troughs of 10-14.9 mg/L and 15-20 mg/L were associated with an average AUC of 539 mg*hour/L and 669 mg*hour/L, respectively. Average troughs and AUC were significantly higher in patients who developed AKI (trough 17.7 vs. 11.9, p=0.018; AUC 770 vs. 509, p=0.012).

CONCLUSIONS: Based on this study, analyzing vancomycin AUC with Bayesian software corresponded with significantly lower average trough concentrations compared to standard trough monitoring.

Video link: <https://vimeo.com/538476660>

I **Retrospective case series and proposed algorithm for utilization of procalcitonin in a nonacademic medical center**

Room I

Presenters: Caleb Hammons

TITLE: Retrospective case series and proposed algorithm for utilization of procalcitonin in a nonacademic medical center

AUTHORS: Caleb C. Hammons, Quentin J. Minson, Matthew D. Percy

OBJECTIVE: Describe ordering practices of PCT for LRTI and sepsis in the absence of criteria at a non-academic tertiary hospital

SELF ASSESSMENT QUESTION: What proportion of patients were ordered PCT for LRTI or sepsis despite having confounding factors?

BACKGROUND: Studies have demonstrated both strengths and weaknesses regarding procalcitonin's use in guiding antimicrobial therapies. Certain factors may influence efficacy; including setting, patient population, and additional antimicrobial stewardship strategies in place. While studies have developed and proposed algorithms for interpretation of procalcitonin values based on indication; studies are lacking in development and proposal of an algorithm for initial ordering of a procalcitonin level with a primary objective of optimizing utility. As procalcitonin's usefulness remains debated, we aim to retrospectively evaluate procalcitonin levels ordered in a single institution to determine which patient populations and clinical scenarios may benefit most and prove cost-effective.

METHODOLOGY: The study has been approved by the Institutional Review Board. Retrospective chart review will be performed at a non-academic medical center located in Nashville, TN. Patients greater than or equal to 18 years of age will be evaluated and included in analysis if they had a procalcitonin level ordered and resulted between January and March of 2020. Identification of patients will occur by running reports through a clinical decision support system. An algorithm will be both proposed and applied to patients included in analysis to determine the number of tests potentially saved and overall efficacy of procalcitonin based on new criteria.

RESULTS: In progress

CONCLUSIONS: In progress

PRESENTATION LINK: <https://www.youtube.com/watch?v=hg3XjT4V4L0>

Presenters: Kevin Ashley

TITLE: Automated dispensing cabinet optimization at a tertiary community hospital

AUTHORS: Kevin Ashley and Kristina M. Freeman

OBJECTIVE: Develop interventions necessary to optimize automated dispensing cabinets.

SELF ASSESSMENT QUESTION: What are the benefits and challenges of implementing an automated dispensing cabinet optimization procedure?

BACKGROUND: Automated dispensing cabinets (ADCs) are a major component in the distribution of medications throughout the hospital. In the studied hospital, the ADCs account for over 1 million dollars in inventory. It is important to routinely evaluate this inventory to impact outcomes on pharmacy workflow and budget. The purpose of this study is to determine the components necessary to initiate an ADC optimization procedure at a tertiary community hospital. The goal will be to implement this process, analyze the data, and develop a standardized operating procedure that may be utilized by pharmacy technicians to perform routinely in the future.

METHODOLOGY: Ten percent of the total most commonly utilized ADCs throughout the hospital were involved in this initial analysis. Baseline data was collected during the pre-optimization phase. This involved identifying the tools available to be used for optimization. These tools were used to determine the percent capacity, stockout percentages, and vend:fill ratios for each ADC involved in the analysis as well as identifying medications with the likelihood to expire. Medications that are commonly ordered from the central pharmacy with the potential to be added to the ADCs were also identified. The optimization phase involved utilizing the initial data collected in the pre-optimization phase and making adjustments to each ADC involved in the analysis. Goal stockout percentages and vend:fill ratios were determined and par levels were adjusted to meet these goals. The post-optimization phase involved re-collection of data from the pre-optimization phase, analyzing this data, and comparing results from each phase.

RESULTS: "In Progress"

CONCLUSIONS: "In Progress"

<https://www.youtube.com/watch?v=HnA7RXHt9M4>

Presenters: Perry Thompson

TITLE: Impact of collaborative pharmacist and dietitian interventions for patients with prediabetes

AUTHORS: Thompson P, Johnson A, Kirk C, Neighbors L, Ragan A, Willis B

OBJECTIVE: At the conclusion of the presentation, the audience will be able to identify the preventative measures needed to delay progression to T2DM

SELF ASSESSMENT QUESTION: What interventions may be helpful in delaying progression to T2DM according to the Diabetes Prevention Program results? Select all that apply.

BACKGROUND: Prediabetes is a major problem in the United States, with current Centers for Disease Control statistics estimating that over 1/3 of the adult population are affected. Interventions for patients with prediabetes have demonstrated decreased progression rates to type II diabetes mellitus. The purpose of this quality improvement project is to evaluate the impact of collaborative interventions between pharmacists and dietitians on surrogate markers of prediabetes progression.

METHODOLOGY: Patients were included if they had an HbA1c between 5.7% and 6.4% in the month preceding project initiation and had an estimated glomerular filtration rate \geq 45 mL/minute/1.73 m². Once identified, clinical pharmacy specialists (CPS) contacted patients for initial encounters to address lifestyle interventions, to assess candidacy for metformin initiation, and to gauge interest in referral to a dietitian for personalized medical nutrition therapy. If interested in referral, the patient was contacted by a registered dietitian. CPS continued to follow-up with the patients as clinically indicated for ongoing education and monitoring.

RESULTS: Out of the initial patients (n=92) contacted by CPS, 58.6% (n=54) were interested in receiving interventions. Of the 54 patients, 72.2% (n=39) agreed to a dietitian consult and 22.2% (n=12) were initiated on metformin therapy. At conclusion of data collection, twenty-five repeat HbA1c have shown an average increase of 0.11% from pre-intervention measures. Patients that received all possible interventions (n=6) saw an average decrease in HbA1c of 0.08%.

CONCLUSIONS: Collaborative efforts between pharmacists and dietitians may have a positive impact on an important surrogate marker of prediabetes progression (HbA1c). Pharmacist intervention alone produced variable effects on HbA1c.

LINK TO PRESENTATION (1080p): <https://www.youtube.com/watch?v=fgdLQzH3KrY>

EMAIL: Perry.Thompson1@va.gov

R An Evaluation of Non-Benzodiazepine Options for the Treatment of Alcohol Withdrawal Syndrome in Trauma Patients

Room B

Presenters: Morgan Cantley

TITLE: An Evaluation of Non-Benzodiazepine Options for the Treatment of Alcohol Withdrawal Syndrome in Trauma Patients

AUTHORS: Nunn A, Miller P, Martin R, Cantley M, Rebo K, McCullough MA, Warner R, Smith O, Shilling E

OBJECTIVE: Determine if using PAWSS and a benzodiazepine-sparing protocol can safely and effectively manage patients at risk for AWS in an ICU setting

SELF ASSESSMENT QUESTION: What was the difference of confirmed severe alcohol withdrawal events between groups?

BACKGROUND: Benzodiazepines have historically been associated with delirium in the intensive care unit (ICU). Recent literature suggests that by utilizing the Prediction of Alcohol Withdrawal Severity Scale (PAWSS), clinicians may be able to reserve benzodiazepines for severe cases of alcohol withdrawal syndrome (AWS) and manage patient symptoms of mild to moderate AWS with other modalities. The trauma ICU at our institution previously utilized a protocol recommending either lorazepam or chlordiazepoxide for the treatment of AWS based on the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scoring system. In 2019, a new protocol was implemented based on literature which encourages the preventative use of benzodiazepine alternatives based on PAWSS. The purpose of this study is to determine whether introduction of a benzodiazepine-sparing protocol is non-inferior to the previous alcohol withdrawal syndrome protocol by reviewing and quantifying the utilization of benzodiazepines before and after transitioning to the benzodiazepine-sparing protocol.

METHODOLOGY: In this retrospective, single-center cohort study, eligible patients were those who screened positive for alcohol use via a positive lab or provider screen for alcohol use or an ICD code for Alcohol Use Disorder and were admitted to a trauma service. We also included patients who had utilized one of the alcohol withdrawal syndrome protocols during their hospital stay. Patients were excluded if they were <18 years old, incarcerated, pregnant, or utilized benzodiazepines at home. The study has been divided into two arms based on the date of protocol implementation into Epic systems at our institution, and outcomes of interest include lorazepam milligram equivalents, hospital and ICU length of stay, ventilator days, and CIWA-Ar scores.

PRELIMINARY RESULTS: The preliminary results suggest a reduction in lorazepam milligram equivalents per patient per hospital stay with the implementation of the benzodiazepine-sparing protocol. These findings are in concert with the increased withdrawal rates noted in the benzodiazepine-utilizing protocol group. There were also significant reductions in the number of ventilator days in the benzodiazepine-sparing protocol group. The data collection is an ongoing process, and therefore, final conclusions are pending.

R Assessment of 23.4% Sodium Chloride Addition to Automated Dispensing Cabinets on Time to Administration

Room D

Presenters: Juliette Miller

Link to presentation: https://youtu.be/HMVVM_VVceM

TITLE: Assessment of 23.4% Sodium Chloride Addition to Automated Dispensing Cabinets on Time to Administration

AUTHORS: Juliette Miller, Tim Robinson, Jennifer Waller, Lindsey Sellers

OBJECTIVE: Identify whether addition of 23.4% sodium chloride to the trauma and neurology intensive care unit (ICU) automated dispensing cabinets (ADCs) decreases the time to administration of the first dose of 23.4% sodium chloride.

SELF ASSESSMENT QUESTION: Does the addition of 23.4% sodium chloride to automated dispensing cabinets in the trauma and neurology intensive care units decrease time to administration of the first dose?

BACKGROUND: Cerebral edema is a medical emergency that requires urgent treatment with hyperosmolar therapy. At one institution, 23.4% sodium chloride was added to the trauma and neurology ICU ADCs on February 1, 2020. The purpose of this study is to determine whether addition of 23.4% sodium chloride to ADCs decreases time to 23.4% sodium chloride administration.

METHODOLOGY: This single-center, retrospective review included patients ≥18 years receiving 23.4% sodium chloride in the trauma or neurology ICUs between January 2, 2019 and February 28, 2021. The pharmacy cohort included patients receiving 23.4% sodium chloride prior to February 1, 2020 and were compared to those who received it from the ADCs. Two-sample t-tests, chi-square tests, and descriptive statistics were used.

RESULTS: A total 31 patients were included. The mean time to administration in minutes was 30.6 for the ADC group and 36.8 for the pharmacy group (P=0.4818). Time to verification was similar (6.3 vs 6.7; P=0.9152). Of the 17 who had documented ICPs, only 2 in the ADC group did not meet the ICP goal <20 mmHg (P=0.0735). There were no documented extravasation events, and the incidence of hypotension and vasopressor use were higher with the pharmacy group (P=0.2396, P=0.2550).

CONCLUSIONS: This study did not meet power due to a drug shortage that depleted drug supply for about six months. There was a trend toward a lower time to ICP <20 mmHg with the ADC group. Other limitations include the retrospective design and possible inaccuracy with documentation of administration time. These results suggest there is no harm with addition to ADCs. Further research could confirm the benefits of adding 23.4% sodium chloride to ADCs on time to administration.

R Total versus ideal body weight-based sepsis fluid bolus strategies in patients with and without reduced ejection fraction congestive heart failure

Room C

Presenters: Kaitlyn Claybrook

TITLE: Total versus ideal body weight-based sepsis fluid bolus strategies in patients with and without reduced ejection fraction congestive heart failure

AUTHORS: Kaitlyn Claybrook, Pharm.D.; William Johnson Pharm.D., BCCCP; Alanna Rufe, Pharm.D.; Nancy Bailey, Pharm.D., BCPS; Terry Harris, Pharm.D., BCPS

OBJECTIVE: Identify strategies to fulfill Center for Medicare and Medicaid Services (CMS) sepsis bundle requirements while decreasing fluid bolus calculations.

SELF ASSESSMENT QUESTION: What is the current CMS mandated fluid bolus amount and in what time frame?

BACKGROUND: The primary objective of this study is to assess the differences in clinical outcomes between patients with and without heart failure who are weight-based, fluid-resuscitated in sepsis utilizing total body weight (TBW) or ideal body weight (IBW). The Center for Medicare and Medicaid Services (CMS) accepts both TBW and IBW based sepsis fluid resuscitation and literature is currently sparse regarding outcomes of this practice.

METHODOLOGY: This study was a retrospective chart review utilizing the electronic medical record. Patients with heart failure and sepsis that received a fluid bolus were placed into a study group of either TBW or IBW based fluid bolus. Patients without heart failure that received a sepsis fluid bolus were placed into study groups of either TBW or IBW based fluid bolus.

RESULTS: The primary outcome of length of stay was not found to be significant between cohorts. A secondary outcome that was found to be significant was ICU length of stay between the non-heart failure TBW and IBW bolus groups (4.4 vs 2.9 days, p-value 0.04136). Outcomes that trended significantly were ICU admission and 90-day readmission between non-heart failure TBW and IBW sepsis groups. A statistically significant difference existed in aggregate between non-heart failure and heart failure groups indicating increased morbidity and mortality in the setting of heart failure and sepsis regardless of fluid bolus amount received.

CONCLUSIONS: Using IBW to calculate fluid bolus amounts in patients with sepsis and without heart failure could decrease ICU length of stay. Additionally, future studies could be conducted specifically powered to assess ICU admission and 90-day hospital readmission.

I A Retrospective Analysis of COVID-19 Impact on Pediatric Immunization Adherence

Room I

Presenters: Kara Metowski

TITLE: A Retrospective Analysis of COVID-19 Impact on Pediatric Immunization Adherence

AUTHORS: Kara Metowski, Kristen Turner, Miles Lane, Erica Rubin

OBJECTIVE: Identify if COVID-19 had an impact on adherence to pediatric immunizations

SELF ASSESSMENT QUESTION: Has the COVID-19 pandemic impacted vaccine adherence?

BACKGROUND: The Center for Disease Control (CDC) reported decreased immunization ordering and administration for the pediatric population since the start of the COVID-19 pandemic. The objective of this project was to assess the impact of COVID-19 on adherence to pediatric immunizations.

METHODOLOGY: This retrospective cohort study evaluated immunization adherence of children that were attributed a single provider group within a community-based teaching hospital in two time periods; pre-COVID and post-COVID. The pre-COVID time period was defined as March 22nd, 2019 – September 22nd, 2019 and the post-COVID time cohort was March 22nd, 2020 – September 22nd, 2020. Adherence was assessed through retrospective chart review to the following childhood vaccines: hepatitis B, diphtheria, tetanus, acellular pertussis (DTaP), inactivated polio virus (IPV), varicella, measles, mumps, and rubella (MMR), pneumococcal conjugate (PCV), and haemophilus influenzae B (Hib). Adherence was defined as receiving an immunization within one month of its due date. Patients were identified in the electronic health record by age. Other demographic information abstracted from the electronic health record included gender, race, and payor.

RESULTS: There were no statistically significant differences in the baseline characteristics of gender or race between the pre-COVID and post-COVID cohorts. There were 245 children with immunization opportunities in the pre-COVID cohort and 253 children in the post-COVID cohort. The pre-COVID immunization adherence rate was 72% compared to the post-COVID cohort adherence rate of 51%, which was found to be a statistically significant difference.

CONCLUSIONS: The study revealed a lower vaccine adherence rate in the pre-COVID cohort compared to the post-COVID cohort. This could lead to erosion of herd immunity for previous vaccine preventable diseases in the pediatric population.

Presentation Link: <https://www.youtube.com/watch?v=Gghs3YnHhc0>

Presenters: Erin Creasy

TITLE: Comparison of multiple dose long-acting lipoglycopeptides in a hospital-owned infusion clinic

AUTHORS: Erin Creasy, Samantha Rustamov, Madeline Belk, Macy Wigginton, Jonathan Edwards

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the clinical, safety, and economic outcomes of oritavancin versus dalbavancin therapy in a hospital-owned infusion clinic.

SELF ASSESSMENT QUESTION: What considerations should be made when evaluating novel outpatient antimicrobial therapies in a hospital-owned infusion clinic?

BACKGROUND: The purpose of this study is to determine the optimal long-acting lipoglycopeptide based on a review of clinical, safety, and economic findings when multiple dose regimens are prescribed.

METHODOLOGY: A literature review was conducted to identify any related clinical, safety, or economic evaluations of multiple dose oritavancin or dalbavancin regimens in the outpatient setting. A retrospective chart review and medication use evaluation was conducted to collect clinical, safety, and economic data for patients receiving multiple doses of either oritavancin or dalbavancin from September 2015 to June 2020. Data was evaluated globally and at a patient specific level in order to determine the most optimal agent for the hospital-owned infusion clinic. The findings and conclusions were presented as a recommended action item to various committees within the health system for consideration.

RESULTS: Of the 102 patients included, 73 (71.6%) patients received oritavancin and 29 (28.4%) patients received dalbavancin. The most common indications in both groups were osteomyelitis, cellulitis and prosthetic joint infections. All-cause 30-day readmission rates were numerically less in the dalbanvain group versus the oritavancin group.

Adverse drug reactions occurred at a rate of 2.8% in the oritavancin group compared to 0.0% in the dalbavancin group. The economic margin evaluation in the non-340 B setting favored oritavancin, whereas dalbavancin is favored in the 340 B setting based on the margin evaluation and patient assistance program benefits.

CONCLUSIONS: In progress

Presenters: Andrea Ampuero

TITLE: Evaluation of Antimicrobial Stewardship Practices at the Salisbury Veterans Affairs Health Care System (SVAHCS) Community Living Center (CLC)

AUTHORS: Andrea Ampuero, Brittany Melville, Bailey Guest

OBJECTIVE: Evaluate the effectiveness of pharmacist-led antimicrobial stewardship interventions at the SVAHCS CLC

SELF ASSESSMENT QUESTION: What antimicrobial stewardship interventions do pharmacists perform in the SVAHCS CLC?

BACKGROUND: Antimicrobial stewardship programs (ASP) have shown improvement in patient outcomes, reduction of antimicrobial adverse events and a decrease in antimicrobial resistance in hospitals. There is limited evidence available quantifying the impact of pharmacist-led ASP interventions in long term care facilities. The purpose of this project is to evaluate the effectiveness of antimicrobial stewardship interventions completed at the SVAHCS CLC.

METHODOLOGY: This is a retrospective quality improvement project. Eligible subjects included Veterans residing in the SVAHCS CLC to which an ASP intervention was proposed from May 1, 2018 to January 31, 2021. The primary objective is to determine the effectiveness of ASP interventions in the CLC. Secondary objectives include to assess safety of select implemented CLC ASP interventions and determine cost savings of the implemented ASP interventions.

RESULTS: A total of 379 interventions were included in this project. Of these interventions, 370 were accepted (98%), 5 were accepted with modification (1%) and 4 were rejected (1%). The indication for which the most interventions were performed was osteomyelitis. Vancomycin was the most common antimicrobial for which interventions were performed. Of the 131 interventions assessed for safety, 1 Veteran experienced an adverse drug event (ADE) within 30 days of the intervention including nephrotoxicity and Clostridioides difficile infection. There was a total cost savings of \$102,059.

CONCLUSIONS: This study demonstrates that pharmacist-led ASP interventions proposed in the SVAHCS CLC were effective with a high rate of acceptance. These interventions resulted in a low rate of ADEs and cost savings for the facility.

Link to Recording: Evaluation of Antimicrobial Stewardship Practices at the SVAHCS CLC - YouTube

Presenters: Reem Ghandour

TITLE: Impact of Pharmacist Intervention on the Appropriate Prescribing of Fentanyl Patches

AUTHORS: Reem M Ghandour, Ambra Hannah, Kimm Freeman

OBJECTIVE: Assess the impact of pharmacist intervention on the appropriateness of fentanyl patch prescribing based on patient-specific factors

SELF ASSESSMENT QUESTION: Does pharmacist intervention positively impact appropriate fentanyl patch prescribing?

BACKGROUND: The purpose of this study was twofold. First, we evaluated the impact of pharmacist interventions on the appropriate prescribing of fentanyl patches within the Wellstar Health System. Second, we assessed the effectiveness of a policy revision requiring that pharmacists verify and document the appropriateness of fentanyl patch prescribing during order verification. This is in recognition of the severe adverse-event profile of fentanyl patches as recognized by the Institute for Safe Medication Practices (ISMP).

METHODOLOGY: Data was collected through a multicenter retrospective chart review of adult patients initiated on fentanyl patches at Wellstar hospitals from January 1, 2020, to January 31, 2021. Patients were included if they (1) received an initial fentanyl patch for non-cancer and sickle cell pain, (2) were not receiving hospice or palliative care services, and (3) were admitted to inpatient areas or the emergency department. The primary endpoint was the number of appropriate fentanyl patch orders that had pharmacist intervention. Secondary endpoints included (a) the percentage of pharmacist interventions that were compliant with the documentation requirements and (b) the percentage of appropriate fentanyl patch orders

RESULTS: Pre-policy revision, pharmacists intervened in 12 out of 72 fentanyl patch orders. When pharmacists intervened, 58% of orders (i.e., 7/12) were appropriately prescribed ($p=0.10$). Post-policy revision, pharmacists intervened in 5 out of 16 fentanyl patch orders and none of the five orders were appropriately prescribed ($p=0.09$). However, there was an increase in pharmacist documentation post-policy revision – bringing the compliance rate to 31.25% (i.e., 5/16) vs. 17% (i.e., 12/72) pre-revision.

CONCLUSIONS: The study's findings remain inconclusive due to lack of statistical significance. This seems to be primarily driven by the insufficient sample size across both arms. However, these initial findings suggest that pharmacist interventions are likely to have a positive impact on appropriate fentanyl patch prescribing.

Presenters: Akhilesh Sivakumar

TITLE: Impact of gabapentin and pregabalin use during high-dose melphalan conditioning in patients undergoing an autologous hematopoietic cell transplant

AUTHORS: Akhilesh Sivakumar, Evan Bryson, Kevin Hall, Kathryn Maples, R. Donald Harvey, Subir Goyal

OBJECTIVE: Evaluate the safety of concomitant pregabalin or gabapentin use in patients undergoing ASCT with high-dose melphalan conditioning.

SELF ASSESSMENT QUESTION: Do ASCT patients who receive gabapentin or pregabalin within 24 hours of high-dose melphalan experience increased toxicity from the conditioning regimen?

BACKGROUND: Melphalan is an alkylating agent used prior to autologous (ASCT) stem cell transplantation. It is transported in the body by the L-type amino acid transporter-1 (LAT-1) and LAT-2, which may be involved in both tissue penetration and excretion of the agent. Gabapentin and pregabalin are common concomitant medications in patients undergoing ASCT. These agents also utilize LAT transporters, raising concern for competitive inhibition of melphalan transport. The purpose of this study was to determine whether concurrent use of gabapentin or pregabalin in patients receiving high-dose melphalan (≥ 140 mg/m²) affected safety of the conditioning regimen.

METHODOLOGY: This was a single-center, retrospective chart review including patients ≥ 18 years of age who received melphalan prior to ASCT at Winship Cancer Institute of Emory University from 8/1/2010 to 4/1/2020. Patients were excluded if they received concomitant levodopa, methylodopa, or baclofen within 24 hours of melphalan. After inclusion of patients who received gabapentin or pregabalin plus melphalan, patient matching based on age, sex, and melphalan dose was utilized to generate an equally matched cohort of patients who received melphalan alone. The primary outcome of this study was hospital length of stay.

RESULTS: There were 176 patients each in the melphalan plus gabapentin or pregabalin and melphalan alone groups. In both groups, median hospital LOS was 16 days ($p=0.981$), median time to neutrophil engraftment was 14 days ($p=0.829$), and median time to platelet engraftment was 16 days ($p=0.289$). There were no statistically significant differences in supportive care needs between groups.

CONCLUSIONS: Co-administration of gabapentin or pregabalin with melphalan appears safe without any compromise in safety of the conditioning regimen.

Presenters: Casey Wells

TITLE: Development of a Medication Access Program in a Family Medicine Practice

AUTHORS: Casey Wells, Laura Bailey, Rebecca Grandy

OBJECTIVE: To describe the development of a medication access program at Mountain Area Health Education Center (MAHEC) Family Medicine

SELF ASSESSMENT QUESTION: What is an effective way to complete medication access consults in Family Medicine Clinics?

BACKGROUND: MAHEC focuses on primary care in rural communities. Between one-third and one-half of the pharmacy consults in our electronic health record are related to medication cost. Due to a growing need for medication assistance, the current PGY1 resident collaborated with family medicine staff to develop a medication access program.

METHODOLOGY: Eighteen half-days of resident clinic were dedicated to development of a medication access program over the first semester. Initially, state resources and collaborative regional partners were identified. In conjunction with clinical leadership within family medicine, we developed a workflow for medication assistance triaging based on acuity and duration of medication need. Next, patients were contacted to assess program eligibility. We developed a standardized process for referral, enrollment, documentation and follow-up. Students were added to the workflow for layered learning opportunities which included navigating the barriers associated with underserved patients.

RESULTS: Seven primary types of consults were completed: manufacturer assistance program applications (N=31), state-level assistance applications, community-level referrals, Medicare low income subsidy applications, coupon or discount program identification, de-prescribing or formulary switch, and care management referrals. The value of medications obtained was estimated at \$186,031. Systems created by the pharmacy resident led to the funding of a pharmacy technician position to coordinate the medication access program.

CONCLUSIONS: Medication access is an important component of primary care services. The development of a medication access program resulted in over 30 patients receiving help on with the cost of their medications in a 3-month period and justified the creation of a full time pharmacy technician position to coordinate the program.

Presenters: Kruti Patel

TITLE: THE IMPACT OF PHARMACIST INTERVENTION ON SHINGRIX VACCINATION RATES AT AN INDEPENDENT COMMUNITY PHARMACY

AUTHORS: Kruti Patel, Spencer Durham

OBJECTIVE: State if pharmacists can improve the rate of completed Shingrix vaccine series.

SELF ASSESSMENT QUESTION: What can community pharmacists do to increase vaccination rates?

BACKGROUND: Vaccination is a cost-effective method of avoiding preventable diseases and associated complications. Despite the availability of highly efficacious and tolerable vaccines, low immunization rates have caused the burden of vaccine-preventable diseases to persist. Pharmacist education of patients has shown to positively impact vaccination rates via face-to-face interactions and promotional materials. The purpose of this quality improvement project is to evaluate the impact of pharmacist education via telephone interaction on rates of Shingrix vaccine series completion.

METHODOLOGY: Patients were identified using reports generated by the QS1 dispensing software for 5 stores of an independent pharmacy corporation. Patients were included if they had received the first dose of the Shingrix vaccine within one year from the date of report. Those eligible for the second dose of Shingrix who had not received it elsewhere were counseled on the health benefits of completing the series and encouraged to return for dose two. Outcomes included number of patients that completed the series at pharmacy prior to contact, completed the series elsewhere, were unable to be reached entirely, received voicemails, were not due for a second dose at the time of report review, were successfully contacted and educated, and that returned to pharmacy after contact to receive the second dose.

RESULTS: 256 patient profiles were reviewed for three of five stores. The three stores had four, five, and four patients that were contacted and educated. The rate of return for dose two was 100%, 100%, and 50% for the three stores, respectively.

CONCLUSIONS: Pharmacist education via telephone interaction can improve the rate of completed Shingrix vaccine series at community pharmacies.

Presenters: Grant Teague

TITLE: Evaluation of implementation of intravenous push antibiotics in the emergency department

AUTHORS: Grant Teague, Jonathon Pouliot

OBJECTIVE: Evaluate operational and clinical outcomes after implementation of intravenous push dosing of antibiotics in the ED

SELF ASSESSMENT QUESTION: What class of antibiotics has shown to be safe and effective when administered via IV push?

BACKGROUND: Many beta-lactams have shown to be safe and effective when administered via intravenous (IV) push. Administration via IV push has shown to have operational and economic benefits, including potentially improving compliance to the CMS 3-hour sepsis bundle. Reducing exposure to COVID-19 and reducing the use of personal protective equipment (PPE) is another timely advantage of IV push administration of antibiotics.

METHODOLOGY: This study is a single-center, retrospective cohort with a historical comparison. Reports from an electronic health record will be used to identify patients > 18 years old who were administered one of the study IV antibiotics, including piperacillin/tazobactam 4.5 grams, cefazolin 1-2 grams, cefoxitin 2 grams, ceftriaxone 1 gram, cefepime 1 gram, meropenem 1 gram, and aztreonam 1 gram, while in the adult ED at a community hospital. This community hospital implemented the IV push antibiotics in the ED initiative in September of 2020, so the control group is those patients who presented prior to implementation, September 2019 to December 2019. The experimental group is those patients who presented after implementation, September 2020 to December 2020.

RESULTS: There was a slight increase in time from diagnosis to antibiotic administration in the post-implementation group. Secondary endpoints also showed an increase ED length of stay and total antibiotic administration time in the post-implementation group. Overall compliance to the CMS sepsis bundle improved by about 14% in the post-implementation group and antibiotic administration improved from 96.6% to 100% compliance. IV push antibiotics resulted in annual cost savings of \$20,645 over traditional IV infusion. 30% of nurses felt that the new protocol reduced the time it took them to administer the antibiotic while another 30% did not perceive any benefit to switching to IV push antibiotics.

CONCLUSIONS: The implementation of IV push antibiotics in the ED results in a significant cost reduction and ease in the administration process as compared to traditional IV infusion. Due to the limitations of the research, additional analysis would be beneficial when process changes due to COVID-19 have returned to normal and the IV push antibiotic protocol has been finalized.

Presenters: Mary Stewart Leatherwood

TITLE: Levetiracetam use after spontaneous intracerebral hemorrhage

AUTHORS: Mary Stewart Leatherwood, Leslie A. Hamilton, A. Shaun Rowe

OBJECTIVE: Describe the significance of the present study in the context of previous studies assessing seizure prophylaxis in spontaneous ICH.

SELF ASSESSMENT QUESTION: Does current evidence warrant seizure prophylaxis in patients with spontaneous ICH?

BACKGROUND: To assess the incidence of seizures in patients with intracerebral hemorrhage (ICH) who received prophylactic levetiracetam.

METHODOLOGY: This retrospective cohort study included patients treated for ICH. Patients were excluded if they were < 18 years of age, had a documented history of a seizure disorder, or had an antiepileptic drug on their home medication list. Patients were dichotomized by their exposure to levetiracetam as seizure prophylaxis. The primary outcome was occurrence of seizure during hospitalization for ICH. Secondary outcomes include occurrence of adverse events, ICU length of stay (LOS), and hospital LOS.

RESULTS: No difference was found in incidence of seizures between groups [4.8% (n=3) LEV vs. 1.4% (n=1) No LEV, p=0.32]. Overall incidence of seizures was low at 1.4% across the entire cohort. No difference was seen in ICU length of stay, hospital length of stay, or occurrence of adverse events.

CONCLUSIONS: Although levetiracetam use as seizure prophylaxis in ICH is likely not harmful, it does not decrease incidence of seizures and is likely not necessary.

Presenters: Courtney Reddig

TITLE: Preoperative Oral Methadone versus Intravenous Methadone Use in Cardiac Surgery

AUTHORS: Courtney Reddig, Lindsay Reulbach, Caroline McKillop, Alex Ewing, Lyndsay Gormley

OBJECTIVE: Identify the role of perioperative oral methadone in cardiac surgery

SELF ASSESSMENT QUESTION: How does the pharmacokinetic profile of methadone differ from other opioids?

BACKGROUND: Traditionally, shorter-acting opioids are administered perioperatively and as repeat boluses after cardiac surgery, which can lead to fluctuating opioid concentrations. A single dose of perioperative intravenous methadone can reduce postoperative analgesic requirements. Oral methadone has a similar pharmacokinetic profile, however limited data exists evaluating its use for postoperative pain management. The purpose of this study was to determine if perioperative oral methadone is noninferior to intravenous methadone at reducing postoperative morphine milligram equivalent (MME) requirements following cardiac surgery.

METHODOLOGY: This study was a single-center, retrospective, pre-and-post analysis evaluating patients undergoing cardiac procedures requiring cardiopulmonary bypass. Patients who received either intravenous methadone between November 2019 and May 2020 or oral methadone between August and December 2020 were included in the analysis. The primary outcome was 24-hour postoperative MME requirements. Secondary outcomes included postoperative pain scores, MME requirements at 48 and 72 hours postoperative, and time until extubation.

RESULTS: A total of 20 patients were included in the intravenous methadone group and 48 in the oral methadone group. Median 24-hour postoperative MME use was 26.25 in the intravenous methadone group and 28.75 in the oral methadone group (p=0.575). There were no significant differences between any secondary outcomes.

CONCLUSIONS: There was no significant difference observed in postoperative MME requirements or pain scores between oral and intravenous methadone. Oral methadone remains a suitable alternative to intravenous methadone to help mitigate opioid use following cardiac surgery.

Presenters: Sarah Sheahon

TITLE: Antimicrobial Stewardship in Medical Oncology

AUTHORS: Sarah Sheahon, Megan Freeman, Sarah Murphy, Victoria Woolley

OBJECTIVE: To assess appropriate empiric antibiotic use retrospectively and intervene prospectively with real time feedback to provide appropriate clinical guideline recommendations.

SELF ASSESSMENT QUESTION: What processes can we put into effect to encourage appropriate empiric antimicrobial agent selection and to de-escalate when clinically necessary? How can we encourage appropriate duration of therapy?

BACKGROUND: Antimicrobial resistance is of particular concern to cancer patients because the ability to prevent and cure infection is a cornerstone of cancer therapy. Although pharmacy currently monitors the use of antimicrobials, there are still limited processes in place to prevent antimicrobial resistance with inappropriate antibiotics usage. The purpose of this evaluation is to assess appropriate empiric antibiotic use retrospectively and intervene prospectively with real time feedback to provide appropriate clinical guideline recommendations.

METHODOLOGY: A retrospective chart review was performed from March 2019—March 2020 on oncology patients prescribed antibiotics for pneumonia, febrile neutropenia and UTI. Data was analyzed for appropriate antibiotic selections and will be compared to post implementation data.

RESULTS: 105 patients were reviewed retrospectively. Overall, suboptimal empiric antibiotics were selected in 42% of diagnoses. Of those 105 patients, 49% had suboptimal durations of therapy. Antibiotic selection was not optimized in 54% (19) of patients diagnosed with pneumonia, 47% (15) of patients diagnosed with UTI, and 26% (9) of patients diagnosed with febrile neutropenia. Duration of therapy was not optimized in 66% (21) of patients with pneumonia, 41% (14) of patients with UTI, and 43% (15) of patients with febrile neutropenia.

CONCLUSIONS: Pre-implementation data suggests the need for real-time interventional feedback and prospective data collection. Overall, suboptimal empiric antibiotics were selected in 42% of diagnoses. Of those 105 patients, 49% had suboptimal durations of therapy.

Presenters: Alexandria Martin

TITLE: Outcomes Related to Coronavirus 19 Infection in a Community Hospital

AUTHORS: Alexandria Martin and Mary Perez

OBJECTIVE: Identify the risk factors for having worse outcomes with COVID-19

SELF ASSESSMENT QUESTION: Which of the following are risk factors for having more negative outcomes if infected with COVID-19?

BACKGROUND: Evaluate outcomes of patients with confirmed diagnosis of COVID-19 in a community hospital.

METHODOLOGY: Retrospective chart review of inpatients currently admitted to Ascension St. Vincent's Birmingham from April through September 2020 with COVID-19 infection. Primary outcome is the change in patient's care at discharge compared to admission. Secondary outcomes include hospital and ICU length of stay, oxygen requirement, ventilator days, tracheostomy placement, and ECMO initiation along with ARDS or thrombus diagnosis. Other outcomes include an analysis of the primary outcome based on comorbidities, ethnicity, specific treatments, and oxygen requirements.

RESULTS: 405 patients were evaluated in this study. 61.8% of patients had no change in level of care at discharge while 20.3% had an escalation of care and 17.9% expired. Mortality was disproportionately higher in the Hispanic population as well as those presenting from a LTAC. Increased oxygen requirements were associated with worse outcomes. Steroids were the therapy associated with greatest benefit at discharge with 55% no change in care, 23.9% escalation of care and 21.1% expired. Average length of stay in ICU and hospital was 15.3 and 12.5 days respectively.

CONCLUSIONS: In our patients, the majority survived with no changes in level of care at discharge. There was a higher mortality rate noted in the Hispanic population as well as patients who presented from a LTAC. Higher level of oxygen requirements was associated with an increased need for escalation of care at discharge, while steroids were associated with better outcomes.

<https://youtu.be/57i7M0cdtvl>

Presenters: Y. Vivian Tsai

TITLE: Predictive Factors for Treatment Success in Patients with Nontuberculous Mycobacterial Infections

AUTHORS: Y. Vivian Tsai, P. Brandon Bookstaver

OBJECTIVE: List potential factors that can influence treatment outcome in patients with NTM infections.

SELF ASSESSMENT QUESTION: What are the factors associated with successful treatment outcomes in patients with NTM infections?

BACKGROUND: Nontuberculous Mycobacterial (NTM) infections are associated with significant morbidity and mortality and often require protracted courses of antibiotics. The purpose of this study is to identify predictors of favorable treatment outcomes in patients with NTM infections.

METHODOLOGY: This was a retrospective, single-center, observational cohort study at Prisma Health Midlands that included patients at least 18 years of age with a positive culture for an NTM species from January 1, 2010 to June 30, 2020. Patients were excluded if they had a concurrent *M. tuberculosis* infection or a monomicrobial culture positive for *M. gordonae*. The primary endpoint of favorable treatment outcomes is defined as successful completion of prescriber-intended treatment course without death, rehospitalization or reinfection at 1 year. Multivariate logistic regression analysis will be used to assess factors associated with a favorable treatment outcomes. Frequency of and reasons for antibiotic regimen changes will be described.

RESULTS: A total of 290 patients were screened for study eligibility. Of these, 78 patients were included for analysis of study endpoints. Forty-seven patients (60.3%) had a favorable treatment outcome. The cohort consisted mainly of non-hispanic caucasian individuals with pulmonary NTM infections. Baseline demographics were similar between two groups, except the unfavorable group consisted of higher proportion of individuals who are underweight, uninsured, and with history of asthma and prior TB treatment. *MAC* and *M. abscessus* were the most common organisms observed. Univariate analysis showed that antibiotic changes, uninsured, underweight, and history of asthma were factors that could influence treatment outcome. However, multivariate regression analysis demonstrated that individuals who had private insurance and had antibiotic changes not due to escalation or de-escalation of therapy were 6 times and 8 times more likely to have a favorable outcomes than those who didn't, respectively. Sixty-five percent of the cohort had a antibiotic change. The most common reasons include: adverse drug reaction (42.3%), susceptibility (16.7%), and treatment optimization (9%). Susceptibility data revealed that first-line agents remained highly susceptible to *MAC*, but suboptimal against *M. abscessus*.

CONCLUSIONS: The management of NTM infection consisted of complex drug regimen, involving multiple antibiotic changes which increased risk for unwanted side effects. This study demonstrated that private insurance and antibiotic changes not due to therapy escalation or de-escalation are factors that could favor a successful treatment outcome in patients with NTM infections. Collaboration between ID pharmacists and physicians in managing antibiotic regimen for such complex patient population is warranted in order to reduce the risk for antibiotic resistance and adverse drug reactions while increasing patient adherence and improving overall prognosis

<https://www.youtube.com/watch?v=GXOn5PmyPeA&feature=youtu.be>

Presenters: Holly Loyd

TITLE: Inpatient length of stay associated with the use of varied glucocorticoid doses for the treatment of chronic obstructive pulmonary disease exacerbations

AUTHORS: Holly Loyd, Pharm.D.; Leborah Cole Lee, Pharm.D., BCPS; Catelin Fulghum, Pharm.D., BCPS; Nancy Bailey, B.S., Pharm.D., BCPS

OBJECTIVE: Assess the outcomes with higher glucocorticoid doses in patients admitted for COPD exacerbation.

SELF ASSESSMENT QUESTION: What is the appropriate glucocorticoid dose for treating mild to moderate COPD exacerbations?

BACKGROUND: Systemic glucocorticoids are a common cause for hyperglycemia and associated complications. Per the 2020 Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines, the recommended therapy for chronic obstructive pulmonary disease (COPD) exacerbations is prednisone 40mg daily for 5 days. However, glucocorticoid prescribing habits vary amongst providers. This study aims to identify a correlation between varied glucocorticoid doses and length of stay for the inpatient treatment of COPD exacerbations.

METHODOLOGY: An IRB-approved, retrospective cohort chart review was conducted utilizing electronic health records. Patients were identified if admitted for COPD exacerbation in 2019 requiring glucocorticoid treatment during hospitalization. Patients were excluded if they did not remain in the hospital for at least 24 hours and/or had a non-COPD pulmonary disorder such as asthma or pneumonia, patients in an immunocompromised state, had any oral glucocorticoid within one week prior to admission, surgery/NPO, had an insulin pump, pregnant/lactating, and/or in acute respiratory failure requiring ventilator support on admission. An average total dose per day and per stay of glucocorticoid was calculated for each patient using methylprednisolone equivalence. Descriptive statistics was utilized for patient demographic data. Outcomes were analyzed using data-appropriate correlation tests.

RESULTS: A total of 180 patients were included in this study. The average total dose of glucocorticoid received per stay was 486mg and 114mg per day. Ninety-five percent of patients received higher than the guideline-recommended dose of 40mg daily for 5 days. There was a statistically significant weak negative correlation between average daily dose and length of stay ($r = -0.2189$; $p < 0.05$). Statistically significant correlations between readmissions at 30 days and 90 days were not found.

CONCLUSIONS: Glucocorticoid doses above guideline recommendations did not meaningfully correlate with decreased length of stay or decreased rate of readmission at 30- or 90-days.

Link: <https://vimeo.com/538885034>

○ **Survival and Safety Outcomes of Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (R-CHOP) Regimens in Elderly Patients with Diffuse Large B-Cell Lymphoma (DLBCL)** Room A

Presenters: S. Jack Dierckes

TITLE: Survival and Safety Outcomes of Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (R-CHOP) Regimens in Elderly Patients with Diffuse Large B-Cell Lymphoma (DLBCL)

AUTHORS: Stephen J Dierckes, Brandi Anders, Rakhee Vaidya, LeAnne Kennedy

OBJECTIVE: To evaluate overall survival (OS), treatment response, and tolerability of R-CHOP based regimens in patients 70 years of age and older and determine the patient and disease characteristics that drove choices of regimen.

SELF ASSESSMENT QUESTION: What patient and disease characteristics prompt providers to utilize full-dose versus attenuated R-CHOP regimens in the treatment of DLBCL, and which regimen is most appropriate in elderly patients 70 years of age and older?

BACKGROUND: Non-Hodgkin Lymphoma is one of the most prevalent cancer types in the United States with DLBCL being the most common subtype. The R-CHOP treatment regimen has been shown to be beneficial across a variety of patients including young patients with good overall prognosis as well as elderly patients. R-Mini-CHOP is a dose-attenuated regimen that has been primarily studied in those >80 years of age, with lower rates of long-term survival but better tolerability. However, as life expectancy has increased, so has the average age of diagnosis, with patients most frequently diagnosed with DLBCL between 60 and 74 years of age. Optimal treatment for those > 70 years of age is unclear and is a balance of patient tolerability and goals of care.

METHODOLOGY: This observational, single-center, retrospective chart review included patients > 70 years of age diagnosed with DLBCL who received an R-CHOP based regimen as first line therapy between January 1, 2013 and July 1, 2020. Patients were analyzed in a group cohort and individual cohorts based on full-dose or dose-attenuated R-CHOP. The primary outcome was OS in months across all patients, with secondary endpoints across both cohorts including OS at 2 years, overall response rate, progression free survival, and progression to second line therapy. Secondary and safety outcomes were collected for all patients. An analysis was conducted to delineate the patient and disease characteristics that drove treatment choices.

RESULTS: In progress.

CONCLUSIONS: In progress.

Link: https://www.youtube.com/watch?v=dQR0ZSD_kqE

B Impact of Curbside Warfarin Monitoring on Appointment Attendance and Patient Satisfaction at an Urban Outpatient Clinic during the COVID-19 Pandemic

Room J

Presenters: Kathleen Macalalag

TITLE: Impact of Curbside Warfarin Monitoring on Appointment Attendance and Patient Satisfaction at an Urban Outpatient Clinic during the COVID-19 Pandemic

AUTHORS: Kathleen Macalalag, Carrington Royals, Jessica King, Autumn Mittleider, Erika McClain

OBJECTIVE: Describe the impact of curbside INR visits on appointment attendance and patient satisfaction.

SELF ASSESSMENT QUESTION: What are some benefits of curbside INR services offered during the COVID-19 pandemic?

BACKGROUND: The current COVID-19 pandemic can instill fear in patients, causing them to cancel warfarin monitoring appointments to reduce their risk of exposure to the virus. Curbside warfarin visits minimize patient contact with others and ensure close monitoring of INRs. The purpose of our study is to assess patient satisfaction with curbside INR testing and attendance at warfarin monitoring appointments prior to and following the implementation of this service.

METHODOLOGY: This single-centered, historical control study included patients of a family medicine clinic that completed at least one pharmacist-managed curbside INR visit between April 1, 2020 to September 30, 2020. The primary endpoint compared the percent of warfarin monitoring appointments canceled prior to and following curbside INR services. Secondary endpoints included percent of patients with comorbidities that increased risk of infection with COVID-19 who canceled appointments, patient satisfaction, and patient perception of length of curbside visits.

RESULTS: Prior to implementing a curbside INR service, 9.1% of our forty-two patients canceled warfarin monitoring visits compared to 8.9% following implementation ($p=1.00$). Of these canceled appointments, 19.4%, 77.4%, and 3.2% of patients had 3, 1 or 2, or no comorbidities that increased the risk of COVID-19 infection, respectively. Forty-two surveys were completed: 95.2% of respondents were satisfied with our curbside INR service, 2.4% had neutral satisfaction, and 2.4% were dissatisfied. Overall, respondents felt that curbside INR visits were shorter than in-clinic INR visits.CONCLUSIONS: Curbside INR visits maintained attendance at the pharmacist-led INR monitoring service despite the COVID-19 pandemic. The majority of patients were satisfied with our service and 88.1% of respondents indicated that they would like curbside INR visits to continue after COVID-19 social distancing requirements become less strict.
<https://vimeo.com/538910434>**B PrEP Adherence and Discontinuation at a Pharmacy-Supported PrEP Program in Atlanta, GA**

Room K

Presenters: Hiba Yacout

TITLE: PrEP Adherence and Discontinuation at a Pharmacy-Supported PrEP Program

AUTHORS: Hiba Yacout; Bradley L. Smith; Shelbie Foster; Meredith Lora; Larisa V. Niles-Carnes; Suprateek Kundu; Ziduo Zheng; Valeria D. Cantos

OBJECTIVE: Determine PrEP adherence in a newly developed program

SELF ASSESSMENT QUESTION: Did insurance status effect adherence or discontinuation rates in this study?

BACKGROUND: Pre-exposure prophylaxis (PrEP) effectiveness in decreasing HIV transmission is directly correlated with medication adherence. Grady Health System (GHS) developed a pharmacy-supported PrEP program aimed at optimizing PrEP uptake. The purpose of this study is to determine PrEP medication adherence and associated factors of patients enrolled during the first 18 months of the program's implementation.

METHODOLOGY: A single-center, retrospective chart review was conducted on patients enrolled in the GHS PrEP program between June 1, 2018 to February 29, 2020 who received more than one PrEP prescription. Adherence was estimated using the medication possession ratio (MPR). The primary outcome was mean adherence to PrEP.

Secondary outcomes include rate of high percent adherence ($MPR > 80\%$), median time of engagement in care, PrEP discontinuation rates, rates of PrEP re-engagement after discontinuation, individual factors associated with PrEP discontinuation and low adherence, sexually transmitted infection (STI) rates and HIV seroconversion.RESULTS: This study included 154 patients who were primarily young, black (70.8%), cisgender men (62.3%) and uninsured (59.1%). 51.9% identified as a men who has sex with men. Mean PrEP adherence was 89.2% and 77.3% of patients demonstrated a high rate of adherence. No individual or social factors were associated with low adherence. 53.8% were active in the program at the end of the follow up period. Young age was associated with PrEP discontinuation ($p<0.0061$).

CONCLUSIONS: This pharmacy-supported PrEP program demonstrated high levels of PrEP adherence. Future areas of improvement include optimizing adherence and engagement in care in young populations.

LINK: <https://drive.google.com/file/d/1fF3DiSXAjGdMf60yR6fv3mjLB7IWdaSI/view?usp=sharing>

C Comparison of clopidogrel versus ticagrelor when used as part of triple antithrombotic therapy with aspirin and apixaban

Room D

Presenters: Mitchell Hutson

TITLE: Comparison of clopidogrel versus ticagrelor when used as part of triple antithrombotic therapy with aspirin and apixaban

AUTHORS: Mitchell Hutson, Travis Fleming, Sara Catherine Pearson, Kimberly Keller

OBJECTIVE: At the conclusion of the presentation, the audience should be able to compare outcomes between two common triple antithrombotic therapy regimens.

SELF ASSESSMENT QUESTION: Is there a difference in bleeding or thrombotic events between a clopidogrel-based and ticagrelor-based triple therapy regimen?

BACKGROUND: Triple antithrombotic therapy is necessary for many patients experiencing acute coronary syndromes who have indications for anticoagulation. Although triple therapy is generally temporary, it is crucial to balance the risk of bleeding and thrombosis. Studies have demonstrated ticagrelor to be superior to clopidogrel in preventing thrombosis, however, a recent meta-analysis demonstrated that ticagrelor increases bleeding risk. Additionally, the emergence of apixaban as the most prescribed oral anticoagulant raises even more safety and efficacy questions when it is used as part of a triple antithrombotic regimen.

METHODOLOGY: This study is a single center, IRB approved, retrospective cohort investigating safety and efficacy outcomes between two different triple antithrombotic regimens in patients undergoing coronary stent placement.

Patients with underlying atrial fibrillation, venous thromboembolism, or other coagulopathy necessitating the use of oral anticoagulation who are admitted for acute coronary syndromes or percutaneous coronary intervention between January 1, 2018 and October 1, 2020 will be included. These patients were identified using the Radial/Femoral Left Heart Catheterization Pathway utilized at the medical center and outpatient cardiology databases.

RESULTS: No difference was found in the incidence of thrombosis between patients in the clopidogrel regimen and ticagrelor regimen [41.3% vs. 26.2%, $p=0.0999$]. Similarly, there was no difference in any subset of bleeding or dyspnea between the two groups.

CONCLUSIONS: There is no difference in the rates of thrombosis or bleeding when comparing clopidogrel-based and ticagrelor-based triple antithrombotic therapy regimens when combined with aspirin and apixaban.

Y Pharmacist Perceptions and Willingness to Initiate COVID-19 Point-of-Care Testing in an Independent, Community Pharmacy Setting

Room G

Presenters: Carrie Lynch

TITLE: Pharmacist Perceptions and Willingness to Initiate COVID-19 Point-of-Care Testing in an Independent, Community Pharmacy Setting

AUTHORS: Carrie Lynch, Patricia H. Fabel, Tessa Hastings, Bryan Love, Gene Reeder

OBJECTIVE: Outline potential implementation strategies for COVID-19 point-of-care testing in an independent, community pharmacy.

SELF ASSESSMENT QUESTION: What are the primary reasons for hesitation among independent, community pharmacists when considering point-of-care testing within their practices?

BACKGROUND: Identify implementation strategies for COVID-19 point-of-care testing in independent, community pharmacies based on pharmacists' current perceptions and perceived barriers.

METHODOLOGY: Eligible participants are pharmacists who maintain an active pharmacist license and are currently practicing in an independent, community pharmacy setting. The survey is part of a larger study of South Carolina pharmacists. A 44-item survey was distributed to pharmacist managers in South Carolina by mailing a postcard with a QR code to the online survey. Factors associated with willingness to implement COVID-19 point-of-care testing will be analyzed by differentiating participants into groups based on pharmacist and practice site characteristics and the existence of the Community Pharmacy Enhanced Services Network's (CPESN) required, core services within the practice.

RESULTS: There was a statistically significant correlation between CPESN enhanced pharmacy status and both the patient-related factors and testing follow-up categories (p -value=0.005 and 0.012, respectively). The correlation involving operations-related factors was not statistically significant (p -value=0.494).

CONCLUSIONS: Independent pharmacies seem more equipped to conduct POC testing when compared to chain pharmacies based on CLIA waiver status. However, there is need to improve status across all practice settings. There is a need to develop strategies to implement COVID-19 POC testing within the pharmacy so as to not interfere with daily workflow as this is the biggest concern for pharmacists within this study. Significant correlations were found between enhanced pharmacy status and patient-related and testing follow-up related barriers. Those pharmacies with enhanced services were more likely to report fewer barriers to POC testing implementation.

Presenters: Sarah Lopez

TITLE: Evaluating Different Regular Insulin Doses for the Treatment of Hyperkalemia

AUTHORS: Sarah Lopez, Joseph Crosby, Amanda Bass, Sabrina Croft

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the role of insulin in effectively and safely lowering potassium.

SELF ASSESSMENT QUESTION: What factors may help with the safety of insulin use for lowering high potassium levels?

BACKGROUND: Determine if there is a difference in treatment efficacy and safety outcomes when using ≥ 10 units and < 10 units of regular insulin dosing in the treatment of hyperkalemia.

METHODOLOGY: A retrospective, observational chart review of adult patients seen at St. Joseph's/Candler Health System who experienced hyperkalemia and were treated with insulin from August 2018 to September 2020. Eligible patients were those who were inpatient, ≥ 18 years of age who were not pregnant and had not experienced hypoglycemia from other causes. Key data points were collected in order to determine if patients were treated safely and effectively with either ≥ 10 units or < 10 units of regular insulin in the treatment of hyperkalemia.

RESULTS: Four hundred and three patients were included in the IRB-approved study. Of those, 86% were treated for hyperkalemia received 10 units insulin or more for their first dose and 69% achieved a serum potassium of < 5.4 mg/dL. Of the 14% of patients who received less than 10 units for their first dose, 76% achieved a serum potassium of < 5.4 mg/dL ($p=.272$). The rate of hypoglycemia in patients receiving ≥ 10 units of insulin was 11%, whereas 7% of those receiving < 10 units experienced hypoglycemia ($p=.345$). All patients underwent follow-up potassium and blood glucose checks, with the average potassium check taking place 11 hours after insulin administration and the average blood glucose check taking place 5 hours post-administration.

CONCLUSIONS: Patients experienced similar efficacy and safety outcomes when treated with ≥ 10 units or < 10 units regular insulin for the treatment of hyperkalemia. Though hypoglycemia occurred more often in patients receiving ≥ 10 units, the overall incidence (11%) was low and not statistically significant.

AUDIOVISUAL RECORDING LINK: <https://youtu.be/3oDscS80ti8>

Presenters: Kelli Keats

Link to Presentation: <https://vimeo.com/537449272>

TITLE: Evaluation of Loading Dose Strategies for Phenytoin/Fosphenytoin for Overweight Patients Using Either Actual or Adjusted Body Weight

AUTHORS: Kelli Keats, Rebecca Powell, Jody Rocker, Lindsey Sellers Coppiano

OBJECTIVE: Identify the optimal loading dose strategy for phenytoin in overweight patients

SELF ASSESSMENT QUESTION: How would you calculate a fosphenytoin loading dose for a patient who weighs 130% of their ideal body weight (IBW)?

BACKGROUND: Traditional loading doses of phenytoin or fosphenytoin are usually 15-20 mg/kg. However, the appropriate dosing strategy in overweight patients is unknown. The purpose of this study is to determine the optimal loading dose strategy of phenytoin/fosphenytoin in overweight patients by comparing the percent of patients achieving the goal serum drug level after a 20mg/kg loading dose using actual body weight (ABW) versus adjusted body weight (AdjBW).

METHODOLOGY: Patients were included if they received a loading dose of phenytoin/fosphenytoin of at least 10mg/kg ABW, had a phenytoin level drawn less than 6 hours after the end of the infusion, and weighed at least 120% of their IBW. Patients were excluded if they received intramuscular phenytoin or were already taking phenytoin.

RESULTS: This single-center, retrospective review included 195 patients (128 in AdjBW group and 67 in ABW group). There were no differences in baseline age, sex, body mass index, history of seizures, or kidney or liver dysfunction. Patients in the AdjBW group weighed more (96.2kg vs. 91.2kg, $p=0.04$) and received a lower dose in milligrams (1364 vs. 1760, $p<0.0001$) and in mg/kg of ABW (14.2 vs. 19.3, $p<0.0001$). The primary outcome of a post-load phenytoin level between 10-20mcg/mL was achieved in 74% of patients in the AdjBW group and 57% of patients in the ABW group ($p=0.02$). Additionally, patients in the ABW group were more likely to have a supratherapeutic level (>20 mcg/mL) (43% vs. 22%, $p=0.003$) although adverse reactions (nystagmus, ataxia, bradycardia, and hypotension) did not differ between the groups.

CONCLUSION: Patients weighing $>120\%$ of their IBW should be dosed with 20mg/kg based on AdjBW to achieve a therapeutic phenytoin concentration of 10-20mcg/mL.

Presenters: Elizabeth Anderson

TITLE: Clinical and economic impact of procalcitonin testing at an academic tertiary care medical center

AUTHORS: Elizabeth Anderson, Cyle White, Brittany White, Emily Goodwin

OBJECTIVE: Determine a clinically and economically appropriate role for PCT testing at the study institution.

SELF ASSESSMENT QUESTION: What effect on antimicrobial therapy duration does PCT testing have at the study institution?

BACKGROUND: In 2017, the US Food and Drug Administration approved procalcitonin (PCT) testing to guide antibiotic therapy in patients with acute respiratory infections. Guidelines by the Infectious Diseases Society of America recommend PCT use to guide de-escalation of antibiotic therapy in certain disease states such as community acquired pneumonia. Erlanger Health System permits the use of PCT to aid in clinical decision making and transitioned from send-out to in-house PCT testing in 2018. The aim of this study is to evaluate the clinical and economic benefits of rapid in-house PCT testing compared with delayed send-out testing.

METHODOLOGY: This is a single center, retrospective, observational study. This study included adult patients admitted to Erlanger Health System who received PCT monitoring in response to a suspected or confirmed infection. Pregnant patients were excluded from this study. Two cohorts were compared, with the first consisting of patients who had PCT levels prior to implementation of in-house, or delayed result PCT testing in November 2018 and the second consisting of patients with PCT levels after the implementation of in-house, or rapid result PCT testing after November 2018. Data was collected using chart review. The primary outcome of this study is total duration of antimicrobial therapy between groups. Secondary outcomes include cost of antimicrobial therapy and PCT testing, number of PCT tests ordered, incidence of *Clostridioides difficile*, mention of PCT testing as a reason to discontinue antimicrobial therapy in the electronic medical record, and number of PCT orders on patients with comorbidities known to affect PCT levels irrespective of infection.

RESULTS: In process .

CONCLUSIONS: In process.

LINK <https://www.youtube.com/watch?v=YhzkgJULx2M>

Presenters: Natalie Ramsey

TITLE: The Use of Convalescent Plasma Therapy in the Management of COVID-19: A Retrospective Study

AUTHORS: Natalie Ramsey, Matt McAllister, Deanna Tabb, Saad Aldosari

OBJECTIVE: Determine if ABO compatible COVID-19 convalescent plasma is a viable treatment option for COVID-19
SELF ASSESSMENT QUESTION: Does the use of ABO compatible COVID-19 convalescent plasma reduce length of hospital stay in patients diagnosed and hospitalized with COVID-19?

BACKGROUND: SARS-COV-2 or COVID-19 has infected millions worldwide and has become a world pandemic since December 2019. As of September 2020, there were still limited treatment and vaccine options, leaving a strain on the health care system and an urgent need for effective therapies. The use of convalescent plasma for treatment of COVID-19 was initiated in early April 2020 through the Expanded Access Program to help with the need of new therapies. Since the use of convalescent plasma for COVID-19 is still new, questions regarding efficacy still remain. The purpose of this study is to assess the safety and efficacy of ABO compatible COVID-19 convalescent plasma compared to supportive care in patients hospitalized and diagnosed with a positive PCR COVID-19 test.

METHODOLOGY: An IRB approved retrospective chart review of patients with a confirmed diagnosis of COVID-19 from a positive PCR COVID-19 test who received ABO compatible convalescent plasma for COVID-19 from March 1, 2020 to August 31, 2020 were compared to similar patients who did not receive convalescent plasma. Patients were excluded if hospital mortality occurred within 3 days of positive PCR COVID-19 result, if they received at least 1 dose of remdesivir, or if they did not receive supplemental oxygen. The primary outcome was change in length of hospital stay. The secondary outcomes include clinical recovery at 28 days, clinical improvement at 28 days, all-cause mortality at 14 and 28 days, change in severity score at 14 and 28 days from baseline, and change in laboratory values of inflammatory markers at 14 and 28 days.

RESULTS: In progress

CONCLUSIONS: In progress

L Evaluating the Use of Direct Oral Anticoagulants in Renal Dysfunction at an Academic Medical Center

Room E

Presenters: Aasna Patel

TITLE: Evaluating the Use of Direct Oral Anticoagulants in Renal Dysfunction at an Academic Medical Center

AUTHORS: Aasna Patel, Leah Ann Durham, Margaret Pate, Amy Weiss

OBJECTIVE: Summarize the findings regarding the use of DOACs in patients with renal dysfunction.

SELF ASSESSMENT QUESTION: Which of the following patient populations experienced the most adverse events on their home dose of apixaban or rivaroxaban?

BACKGROUND: Direct oral anticoagulants (DOACs) offer more predictable pharmacokinetics, fewer drug interactions, and fixed dosing strategies making them attractive options for anticoagulation. Because of limited data for dosing guidance in renal dysfunction, including patients with either end stage renal disease (ESRD) or chronic kidney disease (CKD), there is a concern for adverse events related to suprathreshold or subtherapeutic dosing of DOACs. This project assessed adverse events of patients with renal dysfunction defined as ESRD or CKD who were admitted to UAB Hospital while receiving a DOAC at home.

METHODOLOGY: A retrospective chart review was conducted for patients admitted to UAB Hospital in 2020 on apixaban or rivaroxaban with ESRD or CKD. DOAC indication, adverse event experienced (bleeding or thrombotic event), and renal function were all documented.

RESULTS: Out of the 120 patients evaluated, 20 patients experienced an adverse event related to the use of their DOAC. The majority of patients had ESRD (18/20, 90%), were on apixaban (19/20, 95%), had a bleeding event (14/20, 70%). However, 6/20 (30%) had a thrombotic event. Nineteen patients (95%) were discharged from the hospital after their event. Of the nineteen patients discharged, six patients left without anticoagulation (32%), two were discharged on a different agent (11%), and eleven were continued on the same agent (57%). Three patients who continued the same agent had dose changes (27%).

CONCLUSIONS: A variety of dosing strategies were observed in this patient population. Patients with ESRD seem to be at the highest risk for adverse events. Careful consideration of benefit versus harm and further investigation is needed to determine optimal dosing strategy.

Video Presentation: <https://www.youtube.com/watch?v=XDmwEtmGLRg>

O Evaluation of Immunization Rates After Implementation of a Vaccination Program for Oncology Patients

Room A

Presenters: Taylor Turner

TITLE: Evaluation of Immunization Rates After Implementation of a Vaccination Program for Oncology Patients

AUTHORS: Taylor Turner, Samantha Schmidt, Benjamin Britt

OBJECTIVE: Identify the impact on immunization compliance rates after implementation of a vaccination program for newly diagnosed oncology patients.

SELF ASSESSMENT QUESTION: What impact can pharmacists make on vaccine education and program implementation?

BACKGROUND: Patients with cancer are at increased risk for developing vaccine-preventable infections; this is often due to the malignancy itself, immunosuppressive therapy, or impaired host defenses. Infection can lead to serious complications and administration of recommended immunizations can reduce the morbidity and mortality associated with infection. The purpose of this study is to evaluate the newly implemented oncology vaccination program and its effect on immunization compliance rates.

METHODOLOGY: This pre-and post-intervention chart review was conducted to assess compliance rates for new adult oncology patients. Data for pre-intervention was collected from December 1, 2019 to February 28, 2020 and post-intervention was collected from December 1, 2020 to February 28, 2021. Established oncology patients, those with history of solid organ or bone marrow transplant, comfort care patients, or patients lost to follow up were excluded. The primary endpoint was to evaluate the impact on immunization rates after implementing a vaccination program for oncology patients. The evaluated vaccines included influenza, pneumococcal, varicella zoster, tetanus + pertussis, and human papillomavirus. Secondary endpoints included evaluation of the prevalence of adverse reactions and appropriateness of vaccination timing prior to chemotherapy initiation.

RESULTS: The pre-intervention group featured 309 patients with 159 in the inclusion group and an overall compliance rate of 5.7%. The post-intervention group featured 308 patients with 172 in the inclusion group and an overall compliance rate of 61.0%.

CONCLUSIONS: Implementation of a vaccination program significantly increased compliance rates in newly diagnosed oncology patients. These findings add important data to the limited body of studies on vaccine adherence in oncology patients.

Video link: <https://lexmed.wistia.com/medias/kdb3xtcsao>

1 Effect of Time-to-Therapeutic Tacrolimus Range on Early Rejection and Renal Dysfunction after Heart Transplant

Room F

Presenters: Alexis Nanni

TITLE: Effect of Time-to-Therapeutic Tacrolimus Range on Renal Dysfunction and Early Rejection after Heart Transplant

AUTHORS: Alexis Nanni, James Henderson, Mara Watson, Matt Harris, Lexie Zidanyue Yang, Adam DeVore

OBJECTIVE: Describe the association between tacrolimus time-to-therapeutic range, early renal dysfunction, and acute cellular rejection after heart transplant.

SELF ASSESSMENT QUESTION: True or **false**: this study found an increased risk of ACR with a longer TTT.

BACKGROUND: Tacrolimus remains the cornerstone of immunosuppressive therapy following heart transplantation (HT). Currently, clinicians may delay initiation to help mitigate nephrotoxicity. This study aimed to determine if there is an association between tacrolimus time-to-therapeutic range (TTT), early renal dysfunction, and acute cellular rejection (ACR) after HT.

METHODOLOGY: This was a retrospective, single center study. Patients included are adult patients who underwent HT at Duke University Hospital between July 2013 and April 2020. The primary endpoint was TTT among patients with and without new onset renal dysfunction. Other variables of interest included the occurrence of ACR, supratherapeutic tacrolimus levels, time from transplant to therapeutic tacrolimus range, and tacrolimus time-in-therapeutic range. Logistic regression analysis was utilized to model the association of TTT with new onset renal dysfunction after tacrolimus initiation, controlling for other known risk factors for renal dysfunction.

RESULTS: A total of 271 patients were included in the final analysis and 95% received basiliximab induction. In the unadjusted analysis, patients who developed new onset renal dysfunction after tacrolimus initiation post-HT had a significantly shorter TTT (11.9 vs 13.6 days, $p=0.049$). Patients were also more likely to have supratherapeutic tacrolimus trough concentrations compared to those who did not (64.2% vs 46.7%, $p=0.013$). When adjusted for other known risk factors there was a trend towards decreased rates of new onset renal dysfunction with longer TTT, but this did not reach statistical significance (OR 0.96; 95% CI [0.91, 1.01], $p=0.09$). There was no association in TTT between patients with and without ACR (13.8 vs 12.9 days, $p=0.263$).

CONCLUSIONS: In the unadjusted analysis, TTT and the incidence of supratherapeutic tacrolimus levels during the first 30 days post-HT were both associated with new onset renal dysfunction. After adjusting for known risk factors of renal dysfunction, TTT was not associated with new onset renal dysfunction. There was no association between TTT and ACR in the setting of high use basiliximab induction.

B IMPLEMENTING THE GOLD 2020 COPD GUIDELINE TREATMENT RECOMMENDATIONS IN VETERAN PATIENTS AT A PRIMARY CARE CLINIC

Room J

Presenters: Taylor Wood

TITLE: IMPLEMENTING THE GOLD 2020 COPD GUIDELINE TREATMENT RECOMMENDATIONS IN VETERAN PATIENTS AT A PRIMARY CARE CLINIC

AUTHORS: Taylor Wood, Thomas Worrall, Rebecca Malcolm

OBJECTIVE: Describe the symptomatic response of patients with COPD following medication therapy changes to align with the GOLD guideline recommendations.

SELF ASSESSMENT QUESTION: What is one potential benefit of ICS de-escalation in COPD medication therapy management?

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality in America. In 2017, the Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (GOLD) guidelines altered the pharmacotherapy recommendations to reflect the newest primary literature, questioning the utility of inhaled corticosteroids (ICS) in COPD. With the latest update, inhaled corticosteroids and long-acting beta-agonist (ICS/LABA) inhalers were no longer preferred for most, with long-acting muscarinic antagonists and long-acting beta-agonists (LAMA/LABA) inhalers playing a larger role. Although the GOLD guideline recommendations have been updated for years, many patients with COPD are not treated with the newest evidence-based COPD medications. Thus, the purpose of this project is to implement the treatment recommendations of the GOLD 2020 guidelines in Veterans with COPD.

METHODOLOGY: Quality improvement project conducted at a primary care clinic targeting ICS withdrawal via telehealth services. Veteran patients included were diagnosed with moderate to severe COPD per Gold 2020 Guidelines – Groups B and C treated with either an ICS/LABA or ICS alone. Patients with asthma, pregnancy, lung cancer, tuberculosis, or who required supplemental oxygen were excluded.

RESULTS: Of 148 veterans identified for ICS de-escalation, 31 patients were contacted for a pharmacotherapy encounter, with 20 of 31 patients able to be reached at the five-week follow-up appointment. The average CAT score at baseline was 15.1, which decreased to 12.8 at follow-up. No patients had emergency visits or hospitalizations for COPD during the study period.

CONCLUSIONS: Pharmacists can assist in implementing evidence-based COPD pharmacotherapy that improves clinical outcomes while also educating on the proper use of inhaler devices.

Presenters: Mackenzi Meier

TITLE: The Impact of Pharmacist Integration in the Primary Care Setting on Transitions of Care Outcomes

AUTHORS: Mackenzi Meier, Grace Simpson, Savannah Eason, Chelsea Keedy

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify the financial impact of having a pharmacist involved in the transitions of care process.

SELF ASSESSMENT QUESTION: Approximately how much revenue is missed when a patient is contacted by non-pharmacy staff post-discharge?

BACKGROUND: To determine the financial impact of ambulatory care pharmacists on transitional care management.

METHODOLOGY: A computer-generated list identified adult patients discharged from St. Joseph's/Candler (SJ/C) with a listed primary care provider within the SJ/C Primary Care Medical Group at Eisenhower. Patients discharged from the hospital that received a post-discharge phone call from a pharmacist were compared to those that received a call by another staff member. Data was collected regarding the financial and non-financial impact of pharmacist involvement.

RESULTS: There were 104 patients discharged from the hospital between November 2019-March 2020 meeting above mentioned criteria. Twenty-four patients were contacted by a pharmacist with 20 hospital follow up appointments scheduled. Total amount billed for those appointments was \$4,220 (average of \$211 per visit). Twenty-five calls were made by non-pharmacist staff with 23 appointments scheduled. Total amount billed for those appointments was \$2,445 (average of \$106 per visit). Of the patients contacted by someone other than the pharmacist, only 5 calls were by other clinical staff. Pharmacists made 33 clinical interventions including medication reconciliation, medication procurement, referrals, lab orders, and education. One intervention was made by non-pharmacist staff. The 30-day readmission rate for pharmacist contacted patients was 8% versus 12% for non-pharmacist contacted patients.

CONCLUSIONS: Pharmacist involvement in transitional care management services in the outpatient setting while integrated into a primary office of a health system is not well described. This data highlights an opportunity for pharmacists to contribute to increased revenue, reduced readmissions, and optimize clinical interventions upon hospital discharge.

<https://youtu.be/qLm7ci4J82Y>

Presenters: Gabrielle DuBruille

TITLE: Optimizing utilization of SGLT2 inhibitors in an outpatient heart failure population

AUTHORS: G DuBruille, B Sloan, L Straw, C Mardis, M Scalese, R Barfield, P McCann, S Napier, A Mardis

OBJECTIVE: Identify appropriate criteria for initiating an SGLT2 inhibitor in a patient with heart failure with reduced ejection fraction (HFrEF)

BACKGROUND: SGLT2 inhibitors (SGLT2i) decrease morbidity and mortality in patients with HFrEF. Specifically, empagliflozin and dapagliflozin have recently been recommended for HFrEF. The purpose of this study was to assess the impact of a provider education program and SGLT2i initiation protocol on SGLT2i prescribing and to determine barriers to SGLT2i utilization.

METHODOLOGY: This was a single center, retrospective, cross-sectional cohort study of an outpatient heart failure population. The primary outcome was the proportion of patients on SGLT2i therapy seen in clinic prior to (May/June 2019) and after (May/June 2020) pharmacist-led protocol development and provider education. Candidates for SGLT2i were those with NYHA Class II-IV symptoms, SBP \geq 120 mmHg (MAP \geq 80 mmHg for left ventricular assist device), and eGFR \geq 20 mL/min. Chi-square and t-tests were used to compare categorical and continuous data, respectively.

RESULTS: A total of 760 outpatient encounters were evaluated; most patient characteristics were similar between the pre- and post-protocol cohorts. In the pre-protocol cohort, 1% of patients received SGLT2i therapy, compared to 16% of patients in the post-protocol cohort ($p < 0.0001$). Patients with a recent heart failure hospitalization, eGFR < 45 mL/min, or > 60 years old were less likely to be initiated on therapy. In addition to improved rates of SGLT2i utilization, prescribing rates of other guideline-directed medical therapies (GDMT) also improved.

CONCLUSIONS: Pharmacist-led provider education and initiation protocols increased SGLT2i utilization in an outpatient heart failure population, as well as additional GDMT. Pharmacists play a vital role in improving SGLT2i utilization.

SELF ASSESSMENT QUESTION: Which of the following criteria is required to initiate empagliflozin in a patient diagnosed with HFrEF? (Select all that apply) A. eGFR ≥ 20 mL/min/1.73m² B. eGFR ≥ 30 mL/min/1.73m² C. NYHA Class II-IV D. Diagnosed with type 2 diabetes

Email: Gabrielle.Dubruille@prismahealth.org

Presentation link: <https://youtu.be/TApn5tmhTbA>

Presenters: Shannon Lawson

TITLE: Antimicrobial prophylaxis after penetrating brain injury

AUTHORS: Shannon Lawson, Alexandria Hall, Emily Durr, Christopher Morrison

OBJECTIVE: Describe the correlation between prophylactic antibiotic use and early CNS infection in patients with penetrating brain injury.

SELF ASSESSMENT QUESTION: (True/False) Antimicrobial prophylaxis for at least 5 days following penetrating brain injury is required to prevent CNS infection.

BACKGROUND: Characterize prophylactic antimicrobial use and associated outcomes in patients with a penetrating traumatic brain injury (pTBI) at a high volume ACS-verified level 1 trauma center

METHODOLOGY: A single-center retrospective evaluation was conducted, including all patients with a diagnosis of penetrating brain injury at Grady Memorial Hospital between 2016 and 2019. Patients less than 18 years of age or those discharged or deceased within 72 hours were excluded. The primary objective was to assess the rate of central nervous system (CNS) infection in patients with a pTBI. Secondary objectives included secondary infection rates, length of stay, and rate of adherence to the institutional guideline.

RESULTS: Thirty-six patients met inclusion criteria for the study. The mechanism of injury was categorized as a civilian gunshot wound for all 36 patients. Twenty-eight (77.8%) patients received 5 days or less of antimicrobial prophylaxis, and 8 (22.2%) patients received greater than 5 days. Three patients (8.3%) developed a CNS infection within 14 days, all 3 patients were in the group receiving 5 days or less of antimicrobial prophylaxis. Sixteen (44.4%) patients experienced a secondary infection (including pulmonary infection, surgical site infection, skin and soft tissue infection, bacteremia, and/or urinary tract infection). Zero patients received antibiotic coverage (both agent selection and duration) per institutional guideline. The most commonly utilized prophylactic antibiotic agents include: cefazolin (70.9%), vancomycin (41.9%), ceftriaxone (19.3%), and ampicillin/sulbactam (16.1%). Seven (22.6%) patients received only a single dose of prophylactic antibiotics, and 21 (66.7%) received 3 days or less of therapy.

CONCLUSIONS: Findings of this study suggest that there is variability in practice with regard to initiation of prophylactic antibiotics. Despite the low rate of adherence to the institutional guideline, the rate of CNS infection was comparable what has been observed in practice outside of this institution. Conservative use of antimicrobial prophylaxis can be considered in this patient population.

Presenters: Holly Lanham

TITLE: Evaluating the Safety of Rocuronium as an Alternative to Cisatracurium for Acute Respiratory Distress Syndrome

AUTHORS: H. Lanham, E. Konopka, A. Mathews, C. Rackley, B. Kram

OBJECTIVE: To describe differences in safety between continuous infusion cisatracurium and rocuronium in patients with ARDS.

SELF ASSESSMENT QUESTION: Cisatracurium is the most commonly studied NMB for moderate to severe ARDS in the past 5 years.

True

False

BACKGROUND: Neuromuscular blockers (NMBs) help facilitate prone positioning and are utilized in cases of refractory hypoxemia due to acute respiratory distress syndrome (ARDS), although the mortality benefit is still unclear. Limited safety and efficacy data exist for rocuronium in critically ill patients.

METHODOLOGY: This single-center, retrospective cohort study included patients with a continuous infusion NMB ordered for an indication of ARDS between September 2019 and December 2020. Included patients were 18 years of age or older admitted to the medical or surgical intensive care unit. Patients were stratified according to study medication and the presence or absence of SARS-CoV-2 during the hospital admission.

RESULTS: A total of 115 patients were included. Patients remained on continuous infusion NMB for a median duration of 2 days with the vast majority receiving concomitant infusions of opioids and propofol. The median (Q1, Q3) time spent in goal train of four (TOF) range was 50% (22.2%, 80%) for cisatracurium and 42.9% (7.1%, 66.7%) for rocuronium. In hospital mortality was observed in 53.5% in the cisatracurium group and 37.9% in the rocuronium group.

CONCLUSIONS: Cisatracurium and rocuronium appear to achieve a similar proportion of TOF within goal range. Continuous infusion rocuronium might be a reasonable alternative to cisatracurium for patients with moderate-severe ARDS requiring continuous NMB.

https://duke.zoom.us/rec/share/xzlpzI893QjicOnTdc_vYIr4BHRItN2OfJu62ceyQ3irNEoATecEw0GU10JPo8.5pHcmXnrjanSh-N?startTime=1618947975000

G Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System (VAHCS) Community Living Center (CLC)

Room F

Presenters: Heather Sherrill

TITLE: Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System (VAHCS) Community Living Center (CLC)

AUTHORS: Heather Sherrill, Brittany Melville, Camille Robinette

OBJECTIVE: Identify the change in DBI at CLC admission.

SELF ASSESSMENT QUESTION: How did the DBI change at SVAHCS CLC admission?

BACKGROUND: Medications with anticholinergic or sedative properties are commonly prescribed in older adults. The Drug Burden Index (DBI) quantitatively measures an individual's cumulative exposure to these medications. An increased DBI score has been associated with increased adverse events. The purpose of this project is to evaluate Veterans' DBI upon admission to the Salisbury VAHCS CLC.

METHODOLOGY: This is a retrospective quality improvement project. Eligible subjects included Veterans admitted to the SVAHCS CLC from January 1, 2019 to December 31, 2019 age 65 years and older and prescribed an anticholinergic or sedative medication(s) upon admission. The primary objective is to identify the change in DBI at CLC admission. Secondary objectives include describing DBI change from admission to three months following admission or at CLC discharge, comparing the change in DBI for those admitted for long-term versus short stay care, and assessing the number of falls per Veteran.

RESULTS: Seventy-three Veterans were included. There was no change in DBI score at admission for 69 (94.5%) Veterans. DBI score decreased at admission for 3 (4.1%) Veterans and increased for 1 (1.4%) Veteran. There was no change in DBI score for 61 (83.6%) Veterans from admission to three months or CLC discharge. There was no change in DBI score for the majority of Veterans admitted for both long-term versus short stay care (50% vs. 85.5% respectively). Veterans with a high DBI score had the highest fall rate during the study period of 22.6%.

CONCLUSIONS: The majority of Veterans admitted for both long-term and short stay care experienced no change in DBI score at CLC admission or at three months or discharge. Veterans with a high DBI score had more falls than those with low or medium scores.

LINK TO RECORDING: (3) Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System Community L - YouTube

Presenters: Ashley Rizzo

TITLE: Impact of Internal Medicine Pharmacists on Antimicrobial Stewardship (IMPAS)

AUTHORS: Ashley Rizzo, Sujit Suchindran, Benjamin Albrecht, Nicole Metzger

OBJECTIVE: Describe and characterize antimicrobial stewardship interventions made by internal medicine pharmacists to identify areas of stewardship that can be expanded to patients not covered by antimicrobial stewardship teams.

SELF ASSESSMENT QUESTION: Which barrier to implementation of antimicrobial stewardship interventions was encountered most frequently by internal medicine pharmacists?

BACKGROUND: Despite their known benefits, antimicrobial stewardship teams (ASTs) alone may not be able to evaluate all inpatients receiving antimicrobials. Internal medicine (IM) pharmacists within multidisciplinary teams in acute care hospitals reduce medication errors, improve transitions of care, and educate healthcare providers. However, little is known about the impact of IM pharmacists on antimicrobial stewardship. The purpose of this study is to describe and characterize antimicrobial stewardship interventions made by IM pharmacists to identify areas of stewardship that can be expanded to patients not covered by ASTs.

METHODOLOGY: This study is a prospective, observational, multicenter, descriptive study conducted at Emory University Hospital (EUH) and EUH Midtown. IM pharmacists and their trainees were recruited to document routinely made antimicrobial stewardship interventions from daily patient care activities. Documentation of interventions was completed using TheraDoc software or equivalent Microsoft Excel spreadsheet. Interventions were classified based on infection source, intervention type, whether recommendations were accepted or rejected by providers, as well as any barriers encountered to implementation. Pharmacists were included and recruited to participate if they were assigned to an adult IM service. The primary objective was to identify, describe, and characterize the most common antimicrobial stewardship interventions made by IM pharmacists. Secondary objectives include classification of interventions by type, acceptance of interventions by providers, and others. Data will be analyzed using descriptive statistics.

RESULTS: 208 interventions were made by 6 participants over 6 weeks and were accepted 95.2% of the time. Intervention on vancomycin was most common (30.3%), respiratory infections were most common (21.6%), and most common interventions were dose adjustment based on patient factors (26.9%) and shortened duration (20.7%). The most common barrier was physician concerns (46.7%).

CONCLUSIONS: IM pharmacists made several stewardship interventions during routine patient care that are typically accepted by providers. AST efforts and future outcomes research should be focused on vancomycin utilization, respiratory infections, adverse drug events, or effect of shortened antimicrobial therapy duration.

Link to Presentation: <https://youtu.be/9I-1TUQ8NE>

Presenters: Stephanie Karvosky

TITLE: Piperacillin-tazobactam versus cefepime for empiric gram-negative antimicrobial coverage in patients with sepsis

AUTHORS: Stephanie Karvosky, John Boreyko, Mark Vestal, Julie Thompson, Andrew Darkow

OBJECTIVE: Identify if patients with sepsis should be treated with piperacillin-tazobactam or cefepime for empiric gram-negative antimicrobial coverage, or if the regimens may be used interchangeably based on patient-specific risk factors.

SELF ASSESSMENT QUESTION: Should patients with sepsis be treated with piperacillin-tazobactam or cefepime for empiric gram-negative antimicrobial therapy?

BACKGROUND: Broad-spectrum, empiric antibiotics should be utilized in the initial management of sepsis. The empiric regimens of vancomycin plus piperacillin-tazobactam or cefepime are commonly utilized, but there is sparse literature comparing their gram-negative efficacy in sepsis.

METHODOLOGY: This study was a retrospective, observational, single-center cohort study evaluating patients with sepsis who received either vancomycin plus piperacillin-tazobactam or cefepime for empiric antimicrobial therapy. Participants were included if they were at least 18 years of age, had a diagnosis of sepsis, a provider-documented infection, and were treated with vancomycin plus either piperacillin-tazobactam or cefepime for a minimum of 48 hours. The primary endpoint was same-cause mortality at 30 days. Secondary endpoints included duration of hospital stay, time to first dose of antibiotics, incidence of acute kidney injury, incidence of central nervous system toxicity, and incidence of *Clostridioides difficile* infection.

RESULTS: There were no significant differences between treatment regimen groups regarding any demographic characteristics. The primary endpoint was not statistically significant between treatment regimens [X² (2, N = 146) = 1.42, P = 0.491]. Furthermore, there were no differences between treatment regimens in secondary endpoints, except for primary admission serum creatinine [piperacillin-tazobactam and cefepime, 1.1 vs. 1.6, P = 0.017].

CONCLUSIONS: There were no differences between piperacillin-tazobactam and cefepime for empiric antimicrobial gram-negative coverage in sepsis. Empiric regimens should be initiated based off patient-specific risk factors.

Presenters: Savan Patel

TITLE: Evaluation of Outcomes and Utilization of Adjunctive Therapy in COVID-19 Infections

AUTHORS: Savan Patel, Britney Bowers, Bethany Brock, Joe Rambo

OBJECTIVE: Identify the role of vitamin supplementation in COVID-19 infection.

SELF ASSESSMENT QUESTION: What is the NIH recommended dose of dexamethasone in hospitalized patient indicated for the use of dexamethasone for the treatment of COVID-19 infection?

BACKGROUND: SARS-CoV-2, a highly contagious virus was identified in late 2019 to cause corona virus disease 2019 (COVID-19). The approach to management of patients with SARS-CoV-2 is based on limited data and evolves rapidly as new clinical data emerges. Currently, the limited evidence of supportive therapy for COVID-19 patients has resulted in providers using therapy utilized in other respiratory illnesses. NIH recommends for the use of corticosteroids in severe COVID-19 patients requiring supplemental oxygen. NIH has no recommendation for or against the use of supplement vitamin C, vitamin D and zinc. This chart review will identify the role of adjunctive therapy (corticosteroids, vitamin C, vitamin D and zinc) in the treatment of COVID-19 in hospitalized patients.

METHODOLOGY: Single center, institutional IRB approved, retrospective chart review of hospitalized patients with confirmed COVID-19 infection was conducted. Patients with 18 years of age or older, confirmed COVID-19 infection and hospitalization LOS \geq were included in the chart review. Patients that received systemic corticosteroids were compared to patients that did not receive systemic corticosteroids. And, patients that received vitamin C, vitamin D and zinc were compared to patients that did not receive vitamin C, vitamin D and zinc. Length of hospitalization days, length of ICU days, supplemental oxygen requirements, length of ventilation use and mortality was analyzed to identify the effect of vitamins and systemic steroids on clinical outcomes in patients with COVID-19 infection.

RESULTS: The Vitamin Treatment Group (n=123) had shorter ICU LOS by 3.5 days (11.6 vs 15.1 days), similar length on supplemental oxygen (9.6 vs 10.1 days), shorter ventilation days by 1.4 days (10.9 vs 12.3 days) and reduced mortality (6.5% vs 14.3%), but had longer LOS by 1.4 days (11.2 vs 9.8 days) compared to the Vitamin Control Group (n=77). The Steroid Treatment Group (n=83) had longer ICU LOS by 4 days (12.3 vs 8.3 days), longer supplemental oxygen use by 2.3 days (10.7 vs 8.4 days) and longer ventilation days by 4.7 days (13.4 vs 8.7 days), but had reduced mortality (12% vs 14.8%) compared to the Steroid Control Group (n=61).

CONCLUSIONS: Addition of vitamin D, vitamin C and zinc should be considered for hospitalized patients. Vitamins provided mortality benefit in hospitalized patients and corticosteroids provided mortality benefit in patients requiring supplemental oxygen in hospitalized patients, but it is unknown if the outcomes observed in this chart review are statistically significant.

PRESENTATION LINK: <https://youtu.be/ljkhRmRR-3Y>

Presenters: Montana Fleenor

TITLE: Evaluation of a Prior to Admission (PTA) Medication Reconciliation Risk Scoring Tool

AUTHORS: Montana Fleenor;Lauren McCluggage;Ryan Schell;Halden VanCleave;Scott Nelson

OBJECTIVE: Describe the utility of an admission medication reconciliation risk scoring tool for identifying patients at high risk for medication discrepancies.

SELF ASSESSMENT QUESTION: True or False: The admission medication reconciliation risk scoring tool identified patients at high risk for medication discrepancies.

BACKGROUND: Medication reconciliation is vital in preventing medication errors during transitions of care. Implementation of effective medication reconciliation, however, remains a challenge for healthcare systems due to cost and resource constraints. The objective of this study was to evaluate a risk scoring tool for identifying patients at high risk for medication discrepancies and therefore prioritized for pharmacy intervention with admission medication reconciliation.

METHODOLOGY: Single-center, retrospective study at an academic medical center including patients \geq 18 years of age with a medication history note written by a pharmacy staff member. The primary outcome was number of changes made to the prior to admission (PTA) medication list by pharmacy staff. Secondary outcomes included changes in risk score after medication reconciliation was completed, the number of changes based on individual criteria for risk score, and the number of clinically-relevant changes from a randomized subgroup of patients.

RESULTS: Preliminary results: The study included 10,713 patient encounters.

CONCLUSIONS: In progress

B Comparison of Glycemic Characteristics and Outcomes of People with Diabetes in the Presence or Absence of COVID-19 Infection: A Retrospective Cohort Study

Presenters: Sarah Piraino

TITLE: Comparison of Glycemic Characteristics and Outcomes of People with Diabetes in the Presence or Absence of COVID-19 Infection: A Retrospective Cohort Study

AUTHORS: Sarah Piraino, Jennifer Clements, Karen Bryson

OBJECTIVE: At the conclusion of the presentation, the participant should be able to: Describe differences in glycemic control and diabetes medications between people with diabetes in the presence or absence of COVID-19 infection following a hospitalization.

SELF ASSESSMENT QUESTION: True or false: Following a hospitalization, people with diabetes and COVID-19 infection had a significantly higher A1C level post-discharge than those with diabetes without COVID-19 infection.

BACKGROUND: Diabetes is a significant comorbidity in mortality and poor clinical outcomes during COVID-19 infection. Literature exists on inpatient management of diabetes and COVID-19 infection. However, glycemic characteristics after hospital admission have not been investigated. The purpose of this study was to explore glycemic outcomes between people with diabetes in the presence or absence of COVID-19 infection.

METHODOLOGY: In a retrospective chart review between March 1, 2020 and July 31, 2020, criteria for Group 1 included people with diabetes and COVID-19 infection, whereas Group 2 included people with diabetes without COVID-19 infection. The primary endpoint was a comparison of A1C levels prior to hospital admission and post-discharge between Group 1 and Group 2. Secondary outcomes were changes in number of medications for diabetes, including insulin doses.

RESULTS: Thirty-eight patients met inclusion criteria for Group 1 and thirty-eight patients were matched for Group 2. Baseline characteristics were similar except for higher anion gap ($p=0.02$) in Group 1 and active smoking status ($p=0.02$) in Group 2. There was no difference in the primary outcome ($p=0.07$) between the groups. No differences were found in the number of post-discharge medications ($p=0.30$), insulin doses ($p=0.12$), or number of injections ($p=1.00$) between the groups.

CONCLUSIONS: There were no significant findings when evaluating post-discharge A1C between people with diabetes in the presence or absence of COVID-19 infection. This study had a small sample size and further research may be needed to determine long-term effects of COVID-19 on glycemic control.

Presentation Link: <https://youtu.be/aCnrwBfmQlw>

Presenters: Emily Blaine

TITLE: Evaluation of a High-Risk Patient Program in a Pharmacist-Led Ambulatory Care Clinic

AUTHORS: Emily Blaine, Fallon Hartsell, Courtney E. Gamston, Kimberly Braxton Lloyd

OBJECTIVE: At the conclusion of my presentation, the participant will be able describe common clinical interventions associated with a “high-risk” program.

SELF ASSESSMENT QUESTION: Name three common clinical interventions associated with a “high-risk” program.

BACKGROUND: Uncontrolled disease states place patients at high risk for long term complications and are associated with increased healthcare costs. Pharmacist-led chronic disease state management has been shown to improve patient outcomes and decrease these burdens. The purpose of this study is to evaluate the impact of a comprehensive medication management (CMM) service that targets patients with chronic conditions that are commonly uncontrolled and/or associated with increased healthcare spending.

METHODOLOGY: This project is a single-center, retrospective service evaluation focused on the clinical impact of a service that targets “high-Risk” patients with chronic conditions. Patients were invited to participate in this service if they had the Auburn University insurance and were recently hospitalized, identified as having an uncontrolled disease state through an employer-sponsored biometric screening program, or identified as having polypharmacy by the university’s employee pharmacy. Participants received monetary incentives to participate. A clinical pharmacist of the Auburn University Pharmaceutical Care performed CMM to identify and address patient-specific disease state management needs. Other members of the patient’s healthcare team were contacted with clinical recommendations, as indicated to optimize patient outcomes. Outcomes include changes in clinical markers and number and types of interventions recommended and accepted.

RESULTS: 143 patients were seen for a total of 518 appointments. During those visits, 1130 interventions (ADD AVG +/- SD) were recommended with a 28.4% acceptance rate. Both A1C and total cholesterol significantly decreased from baseline.

CONCLUSIONS: This pharmacist-led ambulatory care service identified numerous opportunities for intervention in patients at high-risk for poor health outcomes. Other outcomes included maintaining and improving clinical markers and optimizing non-pharmacologic and pharmacologic therapy.

YouTube link: <https://youtu.be/EkcLib-DE-g>

Google Docs: <https://docs.google.com/presentation/d/1cN8AhKobU8kc4dnNqR-uKsO2qZ-Zv9cx3LWdfO1SnJk/edit?usp=sharing>

Presenters: Anju Balani

TITLE: IMPACT OF FIXED VERSUS WEIGHT BASED INITIAL FLUID RESUSITATION FOR SEPSIS IN PATIENTS WITH CONGESTIVE HEART FAILIURE

AUTHORS: Anju Balani, Brooke Lucas, Luke Jones, Gregory Givens, Ashley Costello

OBJECTIVE: Identify trends in sepsis management that could have an indirect impact on patients’ cardiovascular outcomes

SELF ASSESSMENT QUESTION: According to CMS Core Measures, what volume of fluid resuscitation is recommended for all patients with severe sepsis or septic shock?

BACKGROUND: Determine if a weight based versus fixed dose of fluid resuscitation for sepsis have an impact on cardiovascular related 30-day readmission incidence.

METHODOLOGY: Retrospective chart review was conducted to identify patients between July 1,2019 and June 31,2020. Eligible participants had a history of heart failure, presented with a diagnosis of sepsis and received NS. The primary endpoint is 30-day readmission incidence for cardiovascular- related causes. Secondary endpoints include hospital length of stay, in-hospital mortality, 30-day mortality, need for intubation, and time to negative fluid balance.

RESULTS:54 patients were included, 33 in the fixed dose group and 21 in the weight based group. 4 patients in the fixed group, and 1 in the weight group experienced the primary outcome (p=1.00). 4 patients in the fixed group and 8 in the weight group had an in hospital mortality (p <0.05). There were no differences identified in any other secondary outcome.

CONCLUSIONS: Fixed dose initial fluid resuscitation in patients with underlying heart failure, did not lower re-admission rates when compared to guideline recommended weight-based approach.

Presenters: Katelyn Jimison

TITLE: Evaluation of antibiotic use following cardiac arrest

AUTHORS: Katelyn Jimison, Tyler Chanas

OBJECTIVE: Describe incidence of positive cultures and common pathogens following cardiac arrest.

SELF ASSESSMENT QUESTION: Which empiric antibiotic regimens may be most appropriate following cardiac arrest?

BACKGROUND: Infections may be common following cardiac arrest, but data are limited to guide antibiotic therapy. Current guidelines from the American Heart Association for post-cardiac arrest care do not make clear recommendations regarding the use of antibiotics in this patient population. The purpose of this study is to characterize the use of empiric antibiotics after cardiac arrest.

METHODOLOGY: This retrospective analysis included adult patients with documented ROSC after in-hospital or out-of-hospital cardiac arrest admitted to an intensive care unit between January 2018 and December 2019. Patients with known infection receiving antibiotics prior to cardiac arrest were excluded. The primary endpoint was incidence of positive cultures following cardiac arrest. Secondary outcomes included empiric antibiotics administered within 7 days of cardiac arrest, organisms identified on culture, and survival to hospital discharge. A total of 758 patients were screened and 625 patients were included for analysis.

RESULTS: 193 (31%) of patients had one or more positive cultures within 7 days following cardiac arrest. Incidence of positive cultures was not significantly different between patients with in-hospital versus out-of-hospital arrest. The most common organisms identified on culture were Gram-negative organisms other than SPACE/SPICE organisms. MRSA and *Pseudomonas* were isolated in cultures from only 2% and 5% of patients, respectively. 357 (57%) of patients received one or more antibiotics within 7 days following arrest. The most commonly administered antibiotics were vancomycin and piperacillin-tazobactam.

CONCLUSIONS: Incidence of positive cultures is fairly low following cardiac arrest, and location of arrest does not appear to significantly impact likelihood of positive culture. Many patients receive broad spectrum antibiotics including MRSA and *Pseudomonas* coverage. The low incidence of these organisms on culture presents an opportunity for selection of more narrow antimicrobial regimens in patients with concern for infection following cardiac arrest.

LINK TO PRESENTATION: <https://youtu.be/p5BN7jvviAI>

Presenters: Layne Reihart

TITLE: Evaluation of vancomycin pharmacokinetic alterations in patients with hemorrhagic stroke on concomitant hypertonic saline therapy

AUTHORS: Layne Reihart, Alyson Wilder, Erin Creech

OBJECTIVE: Describe the effects of concomitant hypertonic saline therapy on vancomycin pharmacokinetic parameters in patients with hemorrhagic stroke.

SELF ASSESSMENT QUESTION: True/False: The investigators hypothesized that, in patients with hemorrhagic stroke, concomitant use of hypertonic saline is associated with reduced clearance of vancomycin.

BACKGROUND: Augmented clearance of vancomycin has previously been described in patients with hemorrhagic stroke. Due to renal regulation of sodium reabsorption and excretion, this augmented clearance may be more pronounced in patients also receiving hypertonic saline. The purpose of this study was to evaluate vancomycin pharmacokinetic parameters in Neuroscience Intensive Care Unit (NSICU) patients with hemorrhagic stroke on concomitant hypertonic saline therapy.

METHODOLOGY: This was a single-center, retrospective cohort study of adult patients admitted to the NSICU with hemorrhagic stroke who received vancomycin between January 1, 2018 and January 1, 2020. Patients with acute kidney injury or renal replacement therapy were excluded. Patients who received hypertonic saline were compared to patients who did not receive hypertonic saline. The primary outcome was the difference between the estimated and actual vancomycin elimination rate constant (k_e) and half-life. Secondary outcomes included weight-based daily vancomycin requirements, vancomycin AUC:MIC achieved, and estimated creatinine clearance based on vancomycin clearance.

RESULTS: There were 75 patients in the control group and 3 patients in the hypertonic saline group. Patients in the hypertonic saline group were younger, had a higher creatinine clearance, and had a higher daily urine output. The actual vancomycin k_e was significantly higher in the hypertonic saline group (0.12 vs 0.09, $p=0.045$), and there was a trend toward a shorter half-life in this group (5.6 vs 7.7 hours, $p=0.054$).

CONCLUSIONS: In patients on vancomycin and concomitant hypertonic saline therapy, there was a trend towards augmented vancomycin clearance demonstrated by a larger actual k_e , a larger difference between the predicted and actual k_e , and a shorter actual half-life.

Email: layne.reihart@prismahealth.org

Presentation Link: https://youtu.be/clPxM0TF9_g

G Implementation of VIONE, a Medication Management Deprescribing Tool, in Home-Based Primary Care and Community Living Centers at a Veteran Affairs Medical Center Room F

Presenters: Natalie Kirkley

TITLE: Implementation of VIONE, a Medication Management Deprescribing Tool, in Home-Based Primary Care and Community Living Centers at a Veteran Affairs Medical Center

AUTHORS: Natalie Kirkley, Chad Potts, Deborah Hobbs

OBJECTIVE: Describe the purpose of implementing a medication management tool aimed at reducing polypharmacy in geriatric patients.

SELF ASSESSMENT QUESTION: What are some barriers associated with medication deprescribing?

BACKGROUND: Polypharmacy, defined as the regular use of at least five medications, plagues the United States healthcare system and affects 42% of the geriatric population. Through medication management and proper deprescribing, the negative consequences associated with polypharmacy can be mitigated. Thus, VIONE, a medication management tool aimed at reducing polypharmacy, was created. VIONE methodology includes reviewing patient profiles and classifying medications into one of five categories: Vital, Important, Optional, Not indicated, or Every medication has an indication. The purpose of this project is to deprescribe unnecessary and potentially harmful medications at the CVVAMC through implementation of VIONE into the Home-Based Primary Care (HBPC) and Community Living Centers (CLCs).

METHODOLOGY: This quality improvement project was approved by the local P&T committee. To be included, Veterans had to be at least 65-years old, enrolled in HBPC or a CLC, and have 15 or more active prescriptions. Hospice patients were excluded. Chart reviews were performed using the VIONE template located in the computerized patient record system (CPRS). Medications found to be "vital" or "important" were maintained. Those found to be "optional" or "not indicated" were recommended for further review by the provider or recommended to be discontinued. All recommendations were documented in CPRS. Shared clinical decisions were made by pharmacist, provider, and patient in regards to any medication adjustments or discontinuations. Data collection is ongoing and includes the total number of Veterans impacted by VIONE, total number of medications deprescribed, classification of deprescribed medications based on pharmaceutical class, and total cost avoidance.

RESULTS: As presented

CONCLUSIONS: As presented

I Adherence to institutional diagnostic stewardship tool for Clostridioides difficile testing Room I

Presenters: Joseph Torrisi

TITLE: Adherence to institutional diagnostic stewardship tool for Clostridioides difficile testing

AUTHORS: Joseph Torrisi, Emily Drwiega, Sheetal Kandiah, Saira Rab, Shreena Advani

OBJECTIVE: Identify the most common reasons for inappropriate C. difficile testing.

SELF ASSESSMENT QUESTION: What was the most common reason for provider non-adherence to the stewardship tool?

BACKGROUND: Grady Health System (GHS) implemented a C. difficile infection (CDI) diagnostic stewardship tool to improve accurate diagnosis of infection, and prevent unnecessary treatment in colonized patients. The components of this tool include questions about patient stool burden, receipt of laxatives, and initiation of tube feeds that must be answered prior to ordering the C. difficile test. This study aims to assess providers' adherence to the CDI diagnostic tool at GHS.

METHODOLOGY: A retrospective chart review of 250 C. difficile tests performed between February 18, 2019 and February 17, 2020 was conducted. The primary outcome was the percent of C. difficile tests ordered that met composite adherence to the diagnostic stewardship tool. Composite adherence was defined as patients having > 3 stools in 24 hours without receipt of laxatives for 48 hours or initiation of tube feeds in 72 hours.

RESULTS: Of the 250 evaluable tests, 67% (n = 167) met composite adherence to the diagnostic stewardship tool. The most common reasons for non-adherence included a lack of stool documentation (n = 62) or the receipt of laxatives (n = 34). Forty-one (89%) of the 46 patients with positive tests that didn't meet composite adherence for testing, received CDI treatment. Patients with positive CDI tests not meeting composite adherence had a median iLOS of 13 days compared to 6 days for those meeting adherence.

CONCLUSIONS: Providers maintained adherence to the diagnostic stewardship tool for most CDI tests. Education to providers about laxative discontinuation prior to testing and nursing about the importance of quantifying stools in the medical chart is an area of improvement that may reduce the number of inappropriate CDI tests.

Presentation: <https://drive.google.com/file/d/1RCi3LEIqKzEG6gmD7ZbSAAu1o4XRv0Ve/view?usp=sharing>

I Sustained Impact of an Antibiotic Stewardship Initiative Targeting Asymptomatic Bacteriuria and Pyuria in the Emergency Department

Presenters: Catie Cash

TITLE: Sustained Impact of an Antibiotic Stewardship Initiative Targeting Asymptomatic Bacteriuria and Pyuria in the Emergency Department

AUTHORS: Mary Catherine Cash, Garrett Hile, Jim Johnson, Tyler Stone, James Beardsley

OBJECTIVE: To describe the sustained impact of an antimicrobial stewardship initiative on the rate of inappropriate treatment of asymptomatic bacteriuria (ASB) and pyuria (ASP) in the Emergency Department (ED).

SELF ASSESSMENT QUESTION: Does a multi-faceted stewardship initiative result in a sustained improvement in inappropriate treatment of ASB and ASP in the ED?

BACKGROUND: A stewardship initiative targeting the inappropriate treatment of ASB and ASP in the ED of Wake Forest Baptist Medical Center was completed in November 2016. A pre-post intervention analysis demonstrated improvement in the rate of inappropriate treatment of ASB and ASP immediately following the intervention; however, its sustained impact is unknown.

METHODOLOGY: This study involves an assessment to determine the sustainability of the November 2016 initiative, a re-education initiative, and an assessment to determine the impact of the re-education. Patients will be included if they were ≥ 18 years old, discharged from the ED during one of the study periods, and had a positive urine culture or pyuria. Patients will be excluded if they had signs or symptoms of a urinary tract infection, another infection requiring antibiotics, an indwelling catheter, ureteral stent, or nephrostomy tube or if pregnant or immunocompromised. The primary outcome is the proportion of patients prescribed antibiotics within 72 hours of discharge from the ED. Secondary outcomes include the number of urine cultures ordered in the ED per 1,000 ED discharges and the number of patients returning to the ED with symptomatic UTI within 30 days of discharge. Patients in this study's pre-intervention (November 2019 – June 2020) will be compared to the 2016 study's post-intervention group to determine the sustained impact of the 2016 intervention. This study's pre-intervention group will be compared to this study's post-intervention group (November 2020 – June 2021) to determine the impact of re-education.

RESULTS: In progress.

CONCLUSIONS: In progress.

LINK TO PRESENTATION: https://youtu.be/SfL_ebmKhEM

Presenters: Kendra Ford

TITLE: Evaluation of Adherence to a Guideline-Based Acute Sickle Cell Pain Crisis Clinical Pathway

AUTHORS: Kendra Ford, Jasmine Jones, Danny Basri, Arielle Spurley

OBJECTIVE: Report the observed change in the clinical management of patients experiencing acute vaso-occlusive crises (VOC), before and after the implementation of an evidence-based clinical pathway.

SELF ASSESSMENT QUESTION: What is the recommended route and frequency of administration for opioid analgesia when managing acute VOC?

BACKGROUND: The Hospital Medicine service at Wellstar Kennestone Hospital implemented a sickle cell clinical pathway including an order set and supplemental opioid prescribing guideline in the summer of 2016 in alignment with the 2014 National Heart, Lung, and Blood Institute (NHLBI) recommendations. The order set includes an automatic consult for the clinical pharmacist pain specialist to perform a comprehensive pain assessment and provide recommendations for optimizing the analgesic regimen. Implementation of the pathway was intended to improve adherence to evidence-based guidelines, standardize care, and decrease time to pain control.

METHODOLOGY: A retrospective, single-center review of patients admitted for sickle cell pain crises was conducted to compare time to initiation of NHLBI guideline-recommended parenteral opioid therapy prior to and after implementation of the sickle cell clinical pathway. Secondary objectives included the pharmacist's impact on adherence to the NHLBI guidelines, the time to clinically significant reduction in pain score, consistency of pain control, the safety of the pathway, and the potential cost avoidance associated with implementation of the sickle cell clinical pathway.

RESULTS: Although not statistically significant, there was an improvement in adherence to the primary objective observed in the post-intervention group. The greatest improvement was seen in the number of patients that received scheduled parenteral opioid therapy within 24 hours of admission to the floor, which increased from 50% to 76%.

CONCLUSIONS: Overall, more patients received guideline recommended opioid therapy with the implementation of this order set. There is an opportunity for improvement to increase order set utilization and future work should include identifying and minimizing barriers to order set utilization.

https://drive.google.com/file/d/1eaTdQYJEqbtGctnqQ90_vQqcF2jcmHfe/view?usp=sharing

Presenters: Riley Jackson

TITLE: Task Generation in the EHR for Pharmacist Prioritization to Review Discharging Patients High at Risk of Readmission

AUTHORS: Riley Jackson, April Williams, Carly Steuber

OBJECTIVE: This project will optimize TOC pharmacist resources more effectively by focusing on higher-risk patients to decrease readmission rates.

SELF ASSESSMENT QUESTION: At the conclusion of my presentation, the participant will be able to describe characteristics of patients identified as high at risk of readmission.

BACKGROUND: Transitions of care pharmacists covering discharges are deployed to cover specified nursing units. Optimizing coverage and balancing workload has been attempted based on frequency of discharges from units. TOC does not have enough pharmacist FTEs to provide full coverage to all units nor substitutions if a pharmacist is off. The current design is for another TOC pharmacist to be assigned as on call for the units that are not covered the day that a pharmacist is off. This is in addition to their regular units that they cover. Within each assignment, a pharmacist is tasked with optimizing their own workflow. The pharmacist must choose which patients to review and counsel at their own discretion if there are too many discharges to cover. Evaluating each patient to organize workflow takes substantial time. Other institutions have software to assist with prioritizing workflow for pharmacists assisting with discharging a patient. Some institutions have this as a part of their Cerner production software.

METHODOLOGY: This project will institute a custom rule into Huntsville Hospital's Cerner Millennium production software to identify and alert TOC pharmacists by task generation about patients with atrial fibrillation, acute myocardial infarction, coronary artery bypass graft, chronic kidney disease, chronic obstructive pulmonary disease, diabetes mellitus, heart failure, and/or 2 inpatient/observation encounters within the last 26 weeks will have specific focus.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Payton Tipton

TITLE: Perceptions and Knowledge of Clinical Pharmacy Among Medical Residents in North Carolina

AUTHORS: Payton Tipton, R. Bowers, A. Mittleider, H. O'Brien, E. McClain

OBJECTIVE: Describe the perceptions and knowledge of clinical pharmacy among medical residents in North Carolina.

SELF ASSESSMENT QUESTION: According to medical residents in this survey, pharmacist involvement is important in which of the following services?

BACKGROUND: Limited data exists on the physicians' perceptions of clinical pharmacists in the United States. In North Carolina, pharmacists can enter into collaborative practice agreements with physicians, allowing them to assume responsibility for patient care services that would normally be beyond their scope of practice. However, this type of collaboration will only be successful if each side sees the value that the other provides to the team and knows of the services that they can provide. The purpose of this study is to identify gaps in understanding of clinical pharmacy and opportunities to increase interprofessional collaboration.

METHODOLOGY: This was a descriptive survey cohort study. The primary objective was to describe perceptions of clinical pharmacy services among medical residents. The secondary objectives were to describe the percentage of medical residents that have access to clinical pharmacy services and to compare the knowledge of available clinical pharmacy services by medical residents versus actual services provided as reported by pharmacists.

RESULTS: Forty-one medical residents in North Carolina completed the survey. Of these, 41.5% attended a private medical school with 75.6% having an MD degree. Majority of residents (58.5%) were a PGY3 or higher. Family medicine and emergency medicine residents were the most represented with 26.5% in each. One-hundred percent of residents felt that pharmacists were important or very important in answering drug information questions, while only 25% felt that pharmacists were important in vaccine administration. At least 50% of medical residents were aware of all pharmacy services available except for transitions of care, vaccine administration, and medication cost assistance.

CONCLUSIONS: Medical residents find pharmacist involvement to be most important in answering drug information questions. There is a continued need for education of medical residents on availability of pharmacy services.

Presenters: Morgan Moulton

TITLE: The impact of a hybrid learning model on student performance and perceptions in the pharmacotherapy I course

AUTHORS: Morgan Moulton, Devin Lavender, Russ Palmer, Beth Phillips, Rebecca Stone

OBJECTIVE: Identify the benefits and barriers seen in hybrid learning compared to face-to-face in a Pharm.D. Pharmacotherapy Course.

SELF ASSESSMENT QUESTION: What was one benefit seen in hybrid learning?

BACKGROUND: This purpose of this study was to evaluate the impact of a hybrid learning model on student performance and perception of learning in a second year (P2) Pharmacotherapy course.

METHODOLOGY: Data were evaluated in P2 students who completed traditional face-to-face learning in Fall 2019 (n=131) compared to a hybrid learning model in Fall 2020 (n=142). Exam scores, teammates evaluations, and survey responses, within course and end-of-course, were utilized. Discrete variables were analyzed using a student's t test, while categorical variables were compared using a Mann-Whitney U test. Thematic analysis was applied to all open-ended responses.

RESULTS: There was no difference observed in the average exam score between 2019 and 2020 (80.3 ± 8.2 vs 79.9 ± 8.2 , $p = 0.7$). When face-to-face, students reported an increased ability to actively listen ($U=6262.5$, $z = -2.91$, $p=0.004$), avoid distractions ($U=6238.5$, $z = -2.66$, $p=0.008$), and were more likely to react emotionally to a topic or instruction ($U=6595.5$, $z = -2.00$, $p=0.045$). Identified benefits of hybrid learning (n=65 responses) included flexibility that enhanced the learning environment (coded 34 times), videoconference technology supported communication and interactivity (coded 17 times), and students were able to focus and engage in learning (coded 16 times). Barriers (n = 45 responses) included challenges with the internet or other technology (coded 26 times), and preference for learning in-person (coded 27 times).

CONCLUSIONS: There was no difference in student performance between the learning models. An optimal hybrid model allows for a flexible learning environment with ample opportunity for face-to-face learning.

Presenters: Huy Luu

TITLE: Anticoagulation in Patients with Atrial Fibrillation after Bioprosthetic Valve Surgery

AUTHORS: Huy Luu, PharmD; Erin Puritz, PharmD, BCPS, BCCCP; Ceressa Ward, PharmD, BCPS, BCCCP, BCNSP; Michael Halkos, MD, MSC; David W. Boorman, MS

OBJECTIVE: Assess if DOACs are an appropriate alternative to warfarin in patients with AF after BVRS

SELF ASSESSMENT QUESTION: The incidence of thromboembolic complications and major bleeding events between DOACs and warfarin in patients with AF after BVRS is similar

BACKGROUND: ACC/AHA and CHEST guidelines recommend warfarin as the preferred anticoagulant to prevent thromboembolic complications after bioprosthetic valve replacement surgery (BVRS). Despite direct oral anticoagulants (DOACs) being approved for use in non-valvular atrial fibrillation (AF), data to support their use in patients with AF after BVRS is limited. The purpose of this study is to compare the efficacy and safety of DOACs and warfarin in preventing thromboembolic complications after BVRS in patients with underlying AF.

METHODOLOGY: A retrospective chart review from January 01, 2015 to June 30, 2020 was conducted. Eligible patients were adults who had history of AF prior to admission, received a DOAC or warfarin, and had a bioprosthetic aortic and/or mitral valve replacement. The primary outcome was the incidence of thromboembolic events at 30 day follow up. The safety outcome was the incidence of major bleeding at 30 day follow up.

RESULTS: Seventy six patients were included in the study with 53 patients in warfarin group and 23 patients in the DOAC group. At 30 days, 6 patients (11%) in the warfarin group experienced thromboembolic events compared to 2 patients (9%) in the DOAC group. At 30 days, major bleeding occurred in 10 patients (19%) in the warfarin treatment arm compared to 3 patients (13%) in the DOAC treatment arm. Of note, the majority of bleeding events occurred in the immediate postoperative period (53%).

CONCLUSIONS: The incidence of thromboembolic and major bleeding events in patients with a history of AF receiving either a DOAC or warfarin after BVRS appeared to be similar. Future large randomized studies are necessary to confirm that DOACs are similar to warfarin in preventing thromboembolic events in patients with concomitant AF immediately after BVRS.

Presenters: Michael Scott

TITLE: Analysis of Tranexamic Acid Utilization in Emergency Department Initiated Massive Transfusion

AUTHORS: Michael Scott, Jennifer Mando-Vandrick, Wennie Huang

OBJECTIVE: To describe risk factors contributing to TXA omission during MTP in the ED.

SELF ASSESSMENT QUESTION: Which of the following is the appropriate dosing for TXA in trauma? a)2 g over 10 minutes b)1 g over 24 hours c)1 g over 10 minutes followed by 1 g over 8 hours d)1 g over 10 minutes followed by 1 g over 24 hours

BACKGROUND: Tranexamic acid (TXA) is a synthetic lysine derivative that exerts its antifibrinolytic action by binding the lysine receptor site on plasminogen. This results in the inability of plasmin to degrade fibrin, thus inhibiting fibrinolysis. Studies have demonstrated that administering TXA (1 gram bolus over 10 minutes followed by 1 gram infusion over eight hours) within three hours of injury to trauma patients with or at risk for significant bleeding reduces the risk of death from hemorrhage.

METHODOLOGY: The primary outcome of this single-center retrospective cohort study is to evaluate risk factors for the omission of TXA during MTP initiated in the ED. Risk factors to be assessed include utilization of the TXA MTP orderset, ED pharmacist presence, ED length of stay, ED disposition location, mechanism of injury, Glasgow Coma Scale (GCS) score upon ED arrival, and trauma level (I, II, or III). Secondary objectives are to determine the effect of TXA administration during MTP on intensive care unit length of stay, hospital length of stay, mortality, and vascular occlusive events.

RESULTS: In progress

CONCLUSIONS: In progress

R Evaluation of quetiapine therapy on difficulty of extubation among mechanically ventilated ICU patients receiving dexmedetomidine for sedation

Room D

Presenters: Sarah Vines

TITLE: Evaluation of quetiapine therapy on difficulty of extubation among mechanically ventilated ICU patients receiving dexmedetomidine for sedation

AUTHORS: Sarah E. Vines, PharmD; J. Luke Britton, PharmD, BCPS; Kelly G. Gandy, PharmD, MPH, BCPS

OBJECTIVE: Describe the role of quetiapine in mechanical ventilator weaning among difficult to wean patients

SELF ASSESSMENT QUESTION: True or false: Quetiapine may be useful to decrease time of mechanical ventilation in difficult to wean patients.

BACKGROUND: To determine the effect of quetiapine on ease of extubation in mechanically ventilated ICU patients receiving dexmedetomidine for sedation.

METHODOLOGY: This study is an IRB approved, retrospective chart review. Study population was identified from patients aged 19 and older admitted to Jackson Hospital ICU between January 1, 2019 and December 31, 2019, who received dexmedetomidine for sedation while ventilated. Patients were determined to have simple or complicated wean from mechanical ventilation based on time of extubation after first successful spontaneous breathing trial. Outcomes were evaluated using data-appropriate statistical analyses.

RESULTS: Eighty-one patients were included where 15 patients received dexmedetomidine plus quetiapine and sixty-six received dexmedetomidine alone. Among patients receiving quetiapine, a statistically significant difference was observed with 53.3% meeting criteria for simple ventilator wean compared to 19.7% in the non-quetiapine group. A statistically significant difference was also observed when comparing rates of delirium between the two groups. Other secondary outcomes that approached statistical significance included length of stay, time of ventilation, and reintubation rates.

CONCLUSIONS: Quetiapine may be useful to facilitate ventilator weaning among patients that are difficult to wean with dexmedetomidine alone. It is possible that managing underlying delirium with quetiapine, but further investigation is required to determine definite correlation.

R Impact of an enhanced recovery after surgery (ERAS) protocol on postoperative outcomes in cardiac surgery patients

Room C

Presenters: Stephanie Bills

TITLE: Impact of an enhanced recovery after surgery (ERAS) protocol on postoperative outcomes in cardiac surgery patients

AUTHORS: Stephanie Bills, Brittany Wills, Samara Boyd, Joseph Elbeery

OBJECTIVE: Identify if utilization of an ERAS protocol decreases the use of postoperative opioids following cardiac surgery.

SELF ASSESSMENT QUESTION: What is the benefit of utilizing an ERAS protocol in cardiac surgery patients?

BACKGROUND: Enhanced recovery after surgery (ERAS) protocols are multimodal perioperative care pathways designed to achieve early recovery after surgical procedures. ERAS protocols have proved to shorten recovery time, and lower opioid utilization and postoperative complication rates, all while being cost-effective. The evidence to support the use of ERAS protocols spans various patient populations, however, minimal data exists in post-operative cardiac surgery patients.

METHODOLOGY: This observational cohort study compared adult patients receiving post-operative care after on-pump coronary artery bypass (CABG) or valve procedures who received an ERAS protocol containing acetaminophen, gabapentin, and methocarbamol to historical controls. The primary objective of this study was to determine if the utilization of an ERAS protocol decreases postoperative opioid use during the first 72 hours following cardiac surgery. Secondary objectives included total postoperative and intensive care unit length of stay, average pain scores 72-hours post-operatively, and incidence of opioid-related complications.

RESULTS: There was a trend towards a reduction in opioid use within 72 hours in the ERAS protocol group (n=133) compared to the historical control group (n=185). Pain control was similar between groups. Opioid-related complications occurred more in the control group regarding constipation (ERAS 47.4% vs control 60.5%; p<0.05) and respiratory depression (ERAS 57.1% vs control 62.7%; p<0.05).

CONCLUSIONS: Use of an ERAS protocol shows promising trend toward less opioid use in cardiac surgery patients. ERAS protocol group achieved similar, and slightly better pain control compared to the historic control group. Post-operative length of stay not impacted. Lower rates of opioid-related adverse events (respiratory depression and constipation).

Link to presentation: <https://youtu.be/nG2Sxy03Vzw>

I **Dalbavancin Compared to Standard of Care for Outpatient treatment of Methicillin-Resistant Staphylococcus aureus Infections in People Who Inject Drugs** Room H

Presenters: Mary Beth Bryant

TITLE: Dalbavancin Compared to Standard of Care for Outpatient treatment of Methicillin-Resistant Staphylococcus aureus Infections in People Who Inject Drugs

AUTHORS: Bryant ME, Yeager SD, Wright LR, Shorman M, Veve MP

OBJECTIVE: Describe the role of dalbavancin in the treatment of invasive MRSA infections in PWID.

SELF ASSESSMENT QUESTION: How does dalbavancin compare to outpatient vancomycin/daptomycin in PWID with MRSA infections in terms of 90-day infection related readmission?

BACKGROUND: People who inject drugs (PWID) are at risk for developing invasive methicillin-resistant Staphylococcus aureus (MRSA) infections. The use of prolonged outpatient intravenous antibiotics is controversial in PWID due to the risk of catheter manipulation and decreased adherence. Dalbavancin may have a role in treating PWID with MRSA infections, but comparative data are limited. This study compared dalbavancin to standard of care (SOC), or daptomycin and vancomycin, for invasive MRSA infections in PWID.

METHODOLOGY: Retrospective cohort performed among adult hospitalized patients with confirmed or suspected MRSA infections treated with outpatient dalbavancin or SOC from 1/2011-11/2020. Patients with a history of or active injection drug use were included. Primary outcome was a composite of 90-day infection-related readmission (IRR), including clinical worsening on treatment, infection relapse following treatment completion, or treatment-related adverse event requiring rehospitalization.

RESULTS: 161 patients included: 69 (43%) dalbavancin and 92 (57%) SOC. The most common infection types were: bone/joint (41%), endocarditis (37%), other bloodstream infections (13%), and skin/abscess (9%). Endocarditis was more common in patients who received SOC (42% vs. 29%, $P=0.08$). 90-day IRR was less frequent in patients who received dalbavancin compared to SOC (15% vs. 33%, $P=0.008$). While there were no differences in clinical worsening or infection relapse, patients who received SOC were more likely to experience a treatment-related adverse event requiring hospitalization (1% dalbavancin vs. 19% SOC, $P=0.001$). Of the 17 treatment-related adverse events requiring readmission in the SOC group, 12 were related to invasive line complications.

CONCLUSIONS: Dalbavancin had similar efficacy to SOC in treating confirmed or suspected invasive infections due to MRSA in PWID, but was less frequently associated with adverse events requiring rehospitalization.

<https://youtu.be/WHK-qNDRYqg>

I **Driving Value-Based Care Utilizing Outcomes and Antibiotic Use Data** Room I

Presenters: Judy Braich

TITLE: Driving Value-Based Care Utilizing Outcomes and Antibiotic Use Data

AUTHORS: Judy Braich, Joy Peterson, Rina Nath, Danny Branstetter, Nicole Eubanks

OBJECTIVE: List potential outcomes that may guide providers when prescribing antimicrobials.

SELF ASSESSMENT QUESTION: Name one outcome providers can use to compare their prescribing habits to others within the health system.

BACKGROUND: The overuse and misuse of antibiotics has led to increasing antimicrobial resistance, rising healthcare costs and an increase in healthcare associated infections. Wellstar Health System already utilizes a dashboard to track overall antibiotic use, however opportunity exists to provide more meaningful and holistic antibiotic use data. The purpose of this project is to develop a system wide, real time, anti-infective dashboard that tracks provider spend and other quality metrics on common and costly infectious disease diagnosis related groups (DRGs).

METHODOLOGY: This was a retrospective quality improvement project that assessed data within the previous fiscal year. With the assistance of Wellstar's EI and IT departments, a trial dashboard was built for review. The dashboard included data from all Wellstar Health System Hospitals. Common infectious disease DRGs were explored and narrowed based on the accuracy of the data retrieved. Additional DRGs will be included once the dashboard is implemented and necessary adjustments are made. Outcomes of interest included duration of therapy, pharmacy and laboratory spend, length of stay, hospital readmissions and 30-day mortality.

RESULTS: After the final data points and outcomes of interest were determined, the idea was presented to key stakeholders within WHS. Stakeholders provided positive feedback on this quality improvement initiative. The Wellstar Business Intelligence team is currently in the process of developing the final product in Tableau®. The final dashboard is expected to be completed in 2-3 months.

CONCLUSIONS: The implementation of a system wide, real time, anti-infective dashboard will drive value based care. Meaningful data involves the use of real time quality metrics with the ability to compare Wellstar facilities and physician specialties. Comparison of these outcomes will encourage providers to practice greater antimicrobial stewardship while maintaining high level quality care.

I Evaluation of antibiotic duration of therapy for ventilator-associated tracheitis in children with pre-existing tracheostomies Room J

Presenters: Victoria Urban

Link to Presentation: <https://vimeo.com/538909035>

Evaluation of antibiotic duration of therapy for ventilator-associated tracheitis in children with pre-existing tracheostomies

Victoria Urban, Kelley Norris, Christopher Campbell

Augusta University Medical Center/ University of Georgia College of Pharmacy

Objectives: This study aims to describe ventilator associated tracheitis (VAT) in pediatric patients with pre-existing tracheostomies and determine the impact of treating VAT for 7 days or less, compared to 8 days or more, on incidence of ventilator associated pneumonia (VAP).

Patients and Methods: This is a retrospective chart review of pediatric patients with pre-existing tracheostomies admitted to the Children's Hospital of Georgia to be treated for the first time for VAT between January 1, 2007 and February 21, 2021. Patients were divided into those who received 7 days or less, compared to 8 days or more, of antibiotics. Primary outcome is incidence of VAP. Secondary outcomes include tracheostomy cultures, antibiotic choice, and length of stay (LOS).

Results: Thirty-nine patients were included. There was no difference in the development in VAP between shorter and longer treatment durations (0 vs 1, $p = 1$). Patients who developed *Pseudomonas aeruginosa* VAT were likely to have a previous culture of *P. aeruginosa* ($p = 0.003$), have a tracheostomy for longer ($p = 0.011$), and be older than 1 year of age ($p = 0.0002$). Empiric treatment with *P. aeruginosa* was associated with a previous culture growing *P. aeruginosa* ($p = 0.003$). Twenty-six percent of patients growing *P. aeruginosa* were not covered by empiric therapy.

Conclusions: Due to the low incidence of VAP in both groups, no difference could be determined. Results suggest empiric treatment of VAT should be based on previous culture results. For a first hospitalization treating VAT, empiric coverages should include coverage for *P. aeruginosa*.

M Evaluation of a Pediatric Protocol on Venous Thromboembolism and Timing of Anti-Xa Levels Room F

Presenters: Clayton Rosenbaum

TITLE: Evaluation of a Pediatric Protocol on Venous Thromboembolism and Timing of Anti-Xa Levels

AUTHORS: Clayton A Rosenbaum, Heather Hughes, Alex Ewing

OBJECTIVE: Identify the possible role of intervention pharmacist may play in a newly adapted pediatric risk scoring tool for the initiation of venous thromboembolism prophylaxis

SELF ASSESSMENT QUESTION: When should anti-Xa levels be drawn for patients on a Q12H enoxaparin dosing regimen?

BACKGROUND: Prisma Health – Upstate has created a risk scoring tool to evaluate venous thromboembolism (VTE) risk in the pediatric population that was implemented in August 2020. Even though the clinical incidence of VTE in the pediatric population is low, there are many times that processes surrounding treatment are improperly done. This protocol was designed to also help with the appropriate collection of anti-Xa levels and guideline-based dosing of enoxaparin. The conclusions from this study should help to determine how pharmacists may be integrated into the protocol firing process to allow for meaningful collaboration between pharmacy and physicians in the matter of initiating and monitoring VTE prophylaxis in pediatric patients.

METHODOLOGY: This study is a single-center, retrospective, pre-and-post analysis evaluating the utility of a newly adapted pediatric protocol for the initiation of venous thromboembolism (VTE) prophylaxis. We identified pediatric patients that received VTE prophylaxis between February 2020 – July 2020 and August 2020 – December 2020 when the protocol was created. Our primary outcomes were appropriate timing of anti-Xa levels and compliance to protocol. Secondary outcomes included amount of anti-Xa levels collected, anti-Xa level in goal %, physician refusal %, weight and age-appropriate dosing, and bleeding event occurrence.

RESULTS: The amount of anti-Xa levels collected within the protocol time frame in the pre-and-post analysis was 9% vs 23% (p -value 0.167) The median number of anti-Xa levels was 4 vs 1 respectively (p -value 0.006). The protocol fired 5144 times, accepted 99 times and used in 11 patients.

CONCLUSIONS: Protocol implementation decreased the number of anti-Xa levels collected. Physician fatigue could be the main cause of the high protocol override percentage. Pharmacy was responsible for 78% of anti-Xa levels collected. The protocol implementation did not produce more accurate timing of anti-Xa level collection.

<https://youtu.be/rPQfrapk68U>

O Evaluation of healthcare-associated infections in patients with hematologic malignancies and stem cell transplantation during the COVID-19 pandemic

Presenters: Laura Bobbitt

TITLE: Evaluation of healthcare-associated infections in patients with hematologic malignancies and stem cell transplantation during the COVID-19 pandemic

AUTHORS: Laura Bobbitt, Katie Gatwood

OBJECTIVE: Describe changes in healthcare-associated infection rates during the COVID-19 pandemic.

SELF ASSESSMENT QUESTION: (true/false) Did the incidence of hospital-acquired infections decrease during the COVID-19 pandemic?

BACKGROUND: Due to the COVID-19 pandemic, there has been an escalation of hygiene practices, both in the hospital and the community, such as universal masking, increased hand hygiene, and social distancing. Malignant hematology and stem cell transplant patients are at an increased risk of infections which can have significant morbidity and mortality in this population. The purpose of this study was to evaluate whether the rates of healthcare-associated infections changed during the COVID-19 pandemic.

METHODOLOGY: We performed a retrospective cohort study of adult malignant hematology and stem cell transplant patients admitted between March 1, 2019 through July 31, 2019 and March 1, 2020 through July 31, 2020. The 2019 cohort served as the contemporary, pre-COVID-19 comparator arm and was compared to the 2020 cohort in which increased hygiene practices were in place. The primary outcome of the study was the incidence of catheter-associated urinary tract infections, central line-associated bloodstream infections, and *Clostridioides difficile* infections. Secondary outcomes included infection-related mortality, number of admissions for neutropenic fever, change in rate of identifiable cause of neutropenic fever, and hospital length of stay.

RESULTS: In Progress

CONCLUSIONS: In Progress

<https://youtu.be/Q-pnlgewnrA>

A Seroconversion rate of Heplisav-B vaccine in patients with end stage renal disease (ESRD)

Presenters: Lindsey Lindsey

TITLE: Seroconversion rate of Heplisav-B vaccine in patients with end stage renal disease (ESRD)

AUTHORS: Lindsey Lindsey, Conner Walsh, Kathryn McDainel, Ted Walton, Sarah Johnson

OBJECTIVE: List potential benefits of Heplisav-B vaccine in ESRD patients.

SELF ASSESSMENT QUESTION: What is the rate of seroconversion for Heplisav-B vaccine in patients with ESRD?

BACKGROUND: Hemodialysis (HD) patients have increased risk for contracting hepatitis B infection through exposure to blood products, shared HD equipment, frequent skin breaching, and overall immunodeficiency. Traditional hepatitis-B (HBV) vaccines such as Recombivax-HB and Engerix-B have an approximate efficacy of 70 – 75 % in this patient population. A new recombinant HBV vaccination, Heplisav-B, does not have FDA approval for special populations, specifically patients with ESRD on HD. However, improved seroconversion rates in other population with Heplisav-B poses many potential benefits to HD patients making it of interest in this patient population.

METHODOLOGY: Heplisav-B was administered as a 3 dose course, each vaccine was administered at minimum 4 weeks apart with titers drawn 4 ± 2 weeks post vaccination series. Patients with ESRD who are HBV vaccine naïve or have a negative surface antigen test, and who are indicated for the HBV vaccination were eligible for the study. Patients were excluded if they deviated from the dosing schedule, had a history of seroconversion, < 18 years of age, pregnant, or incarcerated. The primary outcome was the percent of patients who seroconverted with an anti-HBs titer > 10 IU/mL 4 weeks after the last dose of Heplisav-B vaccine. Secondary outcomes were seroconversion failure stratified by diabetes, use of immunosuppressive therapy, and number of weekly dialysis sessions. The goal is to discern the seroconversion rates in ESRD patients on HD and the impact of immunocompromising states on conversion rates.

RESULTS: Thirty-two patients received the initial dose of vaccine between January 2020 and May 2020 and 24 patients were included. This study showed 84% seroconversion in the 24 patients who completed the vaccination series.

CONCLUSIONS: Heplisav-B had increased seroconversion rates in patients with ESRD compared to conversion rates of Recombivax-HB and Engerix-B.

Presentation link: https://drive.google.com/file/d/1tRVYIPak_vVBjUx7dGAYf3eTXD8zUuFa/view?usp=sharing

B Clinical and Financial Impact of Pharmacists through the Implementation of a Medicare Annual Wellness Visit Service

Room K

Presenters: Aneet Patel

TITLE: Clinical and Financial Impact of Pharmacists through the Implementation of a Medicare Annual Wellness Visit Service

AUTHORS: Aneet Patel, Jamie Coates, Amanda Stankowitz, Alexander Tunnell

OBJECTIVE: Determine the clinical and financial impact of pharmacists in an outpatient clinic through the implementation of a Medicare Annual Wellness Visit service (AWV).

SELF ASSESSMENT QUESTION: Can a pharmacist-led Medicare AWV service impact clinical and financial outcomes in an outpatient clinic?

BACKGROUND: Medicare AWVs are offered at no cost to eligible Medicare beneficiaries to promote general wellness and improve utilization of preventative measures. Prior studies have shown financial impact and clinical interventions made by pharmacists. However, opportunities exist to understand the impact AWVs may have on hospital visits. Therefore, the purpose of this project is to determine the clinical and financial impact of pharmacists in an outpatient clinic through the implementation of a Medicare AWV service.

METHODOLOGY: A pharmacist-led AWV service was implemented at Anderson Health Center (AHC). The study period includes patients seen for AWVs from September 1st, 2020, through August 31st, 2021. Patients who are age 65 years or older and are referred by the AHC Resident Medicine Clinic will be included in the study. Patients will be excluded if they have not been seen by an AHC provider within two years prior to referral or if they are admitted to the emergency center or hospital on the day of their AWV. The primary outcome is to determine the rate of hospital admissions and emergency center visits pre- and post-implementation of the Medicare AWV service. To assess the impact of this service, hospital admissions will be monitored one year prior to and one year after the date of the AWV. Secondary outcomes include the quantity and types of interventions made as well as the total revenue generated from the implementation of a pharmacist-led AWV service.

RESULTS: In Progress. Final results anticipated September 2022.

CONCLUSIONS: In Progress.

PRESENTATION LINK: <https://youtu.be/gJdGag9EIIU>

B Stimulant Misuse in Pregnant Patients at a Rural Perinatal Substance Use Program

Room J

Presenters: Olivia Caron

TITLE: Stimulant Misuse in Pregnant Patients at a Rural Perinatal Substance Use Program

AUTHORS: Olivia A. Caron, PharmD, Melinda Ramage, MSN, FNP-BC, CARN-AP, and Shelley L. Galvin, MA

OBJECTIVE: To compare Project CARA clients with versus without StMU on characteristics, engagement in integrated care, and birth outcomes.

SELF ASSESSMENT QUESTION: What is the current trend of stimulant misuse among pregnant women?

BACKGROUND: In 2019, nearly 1,000 pregnant women misused methamphetamine, 3,000 misused cocaine, and 7,000 misused prescription stimulants. This marks a significant rise in reported stimulant misuse since 2016. The CDC reports that 32.6% of drug overdoses involved opioids and stimulants, and 12.7% involved only stimulants. Currently, treatment revolves around psychotherapy as there is no FDA approved pharmacotherapy.

Project CARA, Care that advocates Respect, Resilience, and Recovery for All, is an obstetrician-gynecologist office housed at Mountain Area Health Education Center (MAHEC) in Western North Carolina. MAHEC first offered integrated substance use treatment services within obstetrical visits in the late 1990s and has grown since 2014 to provide comprehensive perinatal substance use care using current evidence-based practices. Project CARA offers services to pregnant and postpartum patients with any substance use disorder, but has primarily treated patients affected by opioid use disorder.

The intention of this project is to assess if there has been an increase in stimulant misuse and dependence (StMU) over the 5 year evolution of the program, and if so, are there differences in this patient population. Differences in demographics, engagement in care, and birth outcomes were assessed.

METHODOLOGY: Patients identified with StMU (self-report, UDS+, documented Hx) were compared to those without StMU via t-test, chi square, or Fisher exact tests in a secondary analysis of clinical program data. The identified patients were engaged in care at Project CARA from 2014 through 2018.

RESULTS: Identification of StMU among pregnant women increased from 18.6% to 38.8% over the past five years. The 29.0% (172/594) of women with StMU were similar in age, race/ethnicity, and parity compared to other patients ($p > 0.05$). They were more likely to have Medicaid, use tobacco, have concurrent infectious disease, and comorbid psychiatric disorders. Among the patients with OUD, those with concurrent StMU were less likely to be on OUD medication (44.6% v. 91.4%, $p = 0.040$) though they were equally likely to attend expected integrated care visits (66.5% v. 66.8%, $p = 0.933$). They were more likely to seek adjunctive SUD treatment (72.7% v. 52.4%, p

R Impact of a Clinical Decision Support System (CDSS) Alert on Medication Administration Discrepancies in the Emergency Department Room B

Presenters: Elizabeth Pollard

TITLE: Impact of a Clinical Decision Support System (CDSS) Alert on Medication Administration Discrepancies in the Emergency Department

AUTHORS: Elizabeth Pollard, Tanner Shields, Brad Crane

OBJECTIVE: At the conclusion of my presentation, the participant will be able to recognize the potential impact of a CDSS alert in the emergency department.

SELF ASSESSMENT QUESTION: What are some examples of potential benefits of utilizing a CDSS alert in the emergency department?

BACKGROUND: Based on previous analyses in the emergency department (ED) at Blount Memorial Hospital (BMH), it is estimated 2.5 of every 100 medications removed from the automated dispensing machines (ADM) do not have documentation of being administered or returned to the ADM. This suggests medications are either administered without documentation, wasted, incorrectly removed under the wrong patient, or potentially diverted. BMH implemented a Clinical Decision Support System (CDSS) in August of 2020. A CDSS alert was built to identify when medications are removed from an ED ADM due to either (1) no documentation of administration within two hours or (2) no return to the ADM within two hours (discrepancy). A CDSS alert could reduce discrepancies, resulting in improved medical record accuracy and less missed medication charges.

METHODOLOGY: This study was an IRB approved retrospective cohort analysis. Patients were included when medications removed from an ED ADM triggered a CDSS alert due to either (1) no documentation of administration within two hours or (2) no return to the ADM within two hours. Patients were excluded if the medication was documented as administered after two hours, returned to an ADM after two hours, documented as waste, presumed waste after investigation, removed under the wrong patient, removed as the wrong dosage form, or if the outcome was unable to be determined. Administration discrepancy rates and financial impact were compared before and after an intervention (CDSS alert and nurse education) was implemented.

RESULTS: The baseline administration discrepancy rate was found to be 0.64 per 100 medications removed resulting in an estimated \$23,000-\$52,000 in missed charges per year. Post-intervention data collection is still in progress.

CONCLUSIONS: In progress.

<https://tennessee.zoom.us/rec/share/3jIDrL2XyVvKgNBqxIAho2ejC6xYZ5b5hCkSRJGFGk5BHdtJiJXbUrRAYIr3ndoQ.LyKnRB1TtstartTime=1618832782000>

R Impact of nursing driven replacement protocol vs standard practice on electrolyte replacement time Room D

Presenters: Margaret Hodges

TITLE: Impact of nursing driven replacement protocol vs standard practice on electrolyte replacement time

AUTHORS: Margaret Hodges, PharmD; Ashley Beckwith, PharmD; Drew Kessell, PharmD, MBA, MS

OBJECTIVE: To determine if a nursing driven electrolyte replacement protocol reduces the time to electrolyte replacement in critically ill patients.

SELF ASSESSMENT QUESTION: Does a nursing driven protocol impact the time to electrolyte replacement in critically ill patients?

BACKGROUND: Patients admitted to the intensive care unit (ICU) frequently require electrolyte replacement. Following an order, a nursing driven electrolyte replacement based on pre-defined lab parameters is utilized by many hospitals to expedite replacement and decrease call volume to providers.

METHODOLOGY: A retrospective observational study will be conducted to assess the time to electrolyte replacement in patients admitted to the Moore Regional Hospital ICUs between October 1, 2019 – December 31, 2019. Patients will be placed into two groups based upon presence or absence of ordered electrolyte protocol. Patients requiring magnesium, phosphorus or potassium replacement will be included. Data elements to be evaluated include age, gender, time specimen drawn and resulted, measured serum magnesium, phosphorus or potassium, time medication ordered and administered, replacement dose, potassium product ordered, dispense location, and ICU length of stay prior to protocol order. Patients with renal dysfunction, receiving dialysis, DKA or rhabdomyolysis will be excluded, as well as, those who are pregnant or under the age of 18.

RESULTS: In Progress

CONCLUSIONS: In Progress

R Incidence of thrombotic complications related to weight-based dosing of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients

Room C

Presenters: Caitlyn Whitaker

TITLE: Incidence of thrombotic complications related to weight-based dosing of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients

AUTHORS: Caitlyn Whitaker, PharmD, Amanda Mckinney, PharmD, BCCCP, Reagan Bollig, MD, Nathan Hieb, MD, R. Frank Roberts, Jr., MD, FACS, A. Shaun Rowe, Pharm.D., M.S, BCCCP, FNCS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the potential adverse effects of utilizing aPCC in patients requiring DOAC reversal.

SELF ASSESSMENT QUESTION: Which of the following is a risk factor for the development of a thrombotic event following aPCC administration? a. Doses of > 200u/kg/day b. Sepsis c. Crush injury d. Advanced atherosclerotic disease e. All of the above

BACKGROUND: Factor eight inhibitor bypassing activity (aPCC) is recommended as a non-specific reversal agent for direct oral anticoagulants (DOACs) according to the 2017 American College of Cardiology (ACC) guidelines for reversal of anticoagulation. aPCC carries a black box warning for thrombotic events such as stroke, pulmonary embolism, deep vein thrombosis, and myocardial infarction, particularly at high doses. The purpose of this investigation is to determine the incidence of thrombotic complications with weight-based doses of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients, in whom higher doses of aPCC are used.

METHODOLOGY: This is a retrospective, single-center, cohort investigation. Patients who received a weight-based dose of Factor eight inhibitor bypassing activity (aPCC) for direct oral anticoagulant (DOAC) reversal between January 1, 2015 and December 31, 2020 were included. Patients were excluded if they are less than 18 years of age, their aPCC dose or administration was not properly documented, or if they received aPCC for an indication other than DOAC reversal. Patients were grouped by BMI as obese (BMI \geq 30kg/m²) or non-obese (BMI < 30kg/m²) for analysis. The primary outcome of this investigation was occurrence of thrombotic complications (venous thromboembolism [VTE], myocardial infarction [MI], stroke) documented in the medical record at any point during hospitalization after administration of aPCC. Secondary outcomes include in-hospital mortality, ICU and hospital length of stay, and incidence of bleeding complications.

RESULTS: In progress.

CONCLUSIONS: In progress.

https://www.youtube.com/watch?v=Tjwwav_3S8I&feature=youtu.be

I Evaluating the real world use of dalbavancin for off-label indications

Room H

Presenters: Katherine Taylor

TITLE: Evaluating the real world use of dalbavancin for off-label indications

AUTHORS: Katherine Taylor, Jim Johnson, John Williamson, Tyler Stone, Zach Gruss, Jim Beardsley

OBJECTIVE: Describe the effectiveness of dalbavancin for off-label indications.

SELF ASSESSMENT QUESTION: Is dalbavancin an appropriate treatment option for certain off-label indications?

BACKGROUND: The purpose of this study is to evaluate the use of dalbavancin for off-label indications at Wake Forest Baptist Health.

METHODOLOGY: This study is a single health system, retrospective, observational study. Adult patients who received dalbavancin for an off-label indication from January 2018 to January 2020 will be included. Patients who are pregnant or have a concomitant infection caused by a pathogen not covered by dalbavancin will be excluded. The primary outcome is clinical success at 90 days defined as no need for additional antibiotics (excluding suppression therapy) or surgical intervention following the last dose of dalbavancin and no positive cultures associated with the dalbavancin-targeted infection growing the same organism(s) as initial cultures. Secondary outcomes include safety (nephrotoxicity, hepatotoxicity, antibiotic-related reactions, and serious adverse effects) and economic impact related to hospital length of stay and antibiotic expenditures.

RESULTS: A total of 50 patients met inclusion criteria. The primary outcome occurred in 87% of patients. No nephrotoxicity or hepatotoxicity was noted. Additionally, it was estimated that there were 1,078 institutional days saved by using dalbavancin instead of the standard of care.

CONCLUSIONS: Dalbavancin was associated with a reasonable success rate with minimal side effects for the treatment of various off-label indications. Additionally, Dalbavancin has the potential to reduce cost when compared to the standard of care.

VIDEO LINK: <https://youtu.be/ApIQRX0PLZY>

I **IMPACT OF TRANSITIONING IV CEFTRIAXONE TO AN ORAL ANTIBIOTIC IN THE TREATMENT OF URINARY TRACT INFECTIONS IN THE INPATIENT SETTING**

Room I

Presenters: Kelsey Rensing

TITLE: Impact of transitioning IV ceftriaxone to an oral antibiotic in the treatment of urinary tract infections in the inpatient setting

AUTHORS: Kelsey Rensing, PharmD, Joseph Crosby, PhD, RPh, Geneen Gibson, PharmD, MS, BCPS (AQ-ID), Maggie McCarty, PharmD candidate, Emilee Robertson, PharmD, BCPS

OBJECTIVE: Identify the clinical outcomes associated with a transition from IV ceftriaxone to an oral antibiotic.

SELF ASSESSMENT QUESTION: What is the most common reason for a patient to not be switched from IV ceftriaxone to an oral antibiotic?

BACKGROUND: To determine if the hospital length of stay was reduced in those patients with a transition of antibiotic therapy from intravenous (IV) ceftriaxone to an oral antibiotic in adult patients with urinary tract infections.

METHODOLOGY: A computer-generated list identified adult patients admitted to St Joseph's and Candler hospitals diagnosed with an ICD-10 code indicating UTI diagnosis initially treated with IV ceftriaxone. Patients were excluded for: inability to receive oral therapy at 48 hours, antibiotic for a source of infection other than UTI, pregnancy, three or more organisms present in urine culture. Treatment outcomes were evaluated if the patient was able to be switched from an IV to oral antibiotic while inpatient. Length of stay, length of antibiotic treatment, positive bacterial culture, presence or urinary catheter and eligibility for existing IV to oral transition criteria were recorded.

RESULTS: The computer generated list identified 101 patients who were given intravenous ceftriaxone for a urinary tract infection over a five-year span, and only 27 met our inclusion/exclusion criteria. Two out of the 27 patients were switched from intravenous ceftriaxone to an oral antibiotic. Due to this small sample size, we were unable to determine any link between length of stay and the switch from intravenous to oral antibiotics.

CONCLUSIONS: Further studies are needed to evaluate the relationship between transitioning from intravenous to oral antibiotics for the treatment of urinary tract infections in the inpatient setting. We observed that different methods of finding patients who met our inclusion criteria may have been beneficial in obtaining a larger sample size. A retrospective analysis was completed to determine which patients could have been transitioned to an oral antibiotic, and what the most appropriate oral antibiotic choice would have been based on the IDSA guidelines and patient specific factors. Of the 27 patients in our study, 19 could have been switched to oral antibiotic therapy.

Presentation link: <https://youtu.be/vWnfSv5-vgY>

L **A Comparison of Sodium Zirconium Cyclosilicate and Sodium Polystyrene Sulfonate in Adult, Hospitalized Patients with Hyperkalemia**

Room E

Presenters: Taylor Teshon

TITLE: A Comparison of Sodium Zirconium Cyclosilicate and Sodium Polystyrene Sulfonate in Adult, Hospitalized Patients with Hyperkalemia

AUTHORS: Taylor R. Teshon, Hannah M Young, Amanda S. Moyer

OBJECTIVE: To compare the efficacy of sodium zirconium cyclosilicate (SZC) and sodium polystyrene sulfonate (SPS) in adult, hospitalized patients with hyperkalemia.

SELF ASSESSMENT QUESTION: Was SZC more effective than SPS in achieving normokalemia in the treatment of acute hyperkalemia in this study?

BACKGROUND: SPS and SZC are potassium-binding agents with different cation-binding capabilities and onsets of action. There is no data directly comparing these agents. The purpose of this study was to determine if SZC lowers serum potassium levels more effectively than SPS in the treatment of acute hyperkalemia.

METHODOLOGY: A retrospective study was conducted among adult, hospitalized patients with acute hyperkalemia at Prisma Health Richland. Adult patients with hyperkalemia ($K > 5.2$ mEq/L) who received a study agent from September 2018 through August 2020 were included. Patients were mainly excluded if they were on renal replacement therapy; an insulin, bicarbonate, or loop diuretic continuous infusion; or chronic SZC/SPS. The primary objective was to determine if there was a difference in the number of patients who achieved normokalemia when comparing patients treated with SZC or SPS at 24 hours after drug administration. Secondary objectives included comparisons of absolute serum potassium reduction and the number of patients with life-threatening hyperkalemia ($K > 6.5$ mEq/L) who achieved normokalemia.

RESULTS: There were 71 patients included in the SZC group and 96 in the SPS group. There was no difference in the primary outcome, with 66.2% of patients in the SZC group and 72.9% of the SPS group achieving normokalemia ($p=0.349$). There was no difference in the average absolute reduction in serum K between SZC and SPS (0.8 mEq/L in both groups, $p=0.5$), nor was there a difference in the number of patients that achieved normokalemia in life-threatening hyperkalemia between SZC and SPS (33.3% vs 60%, $p=0.608$). A subgroup analysis of the primary endpoint showed that SPS was significantly better than SZC when used without a potassium shifting agent or as the only potassium reducing agent.

CONCLUSIONS: There was no difference in the efficacy of SZC and SPS when used in a multimodal treatment strategy for the treatment of acute hyperkalemia in this study.

Presenters: Sherwyn Tenia

TITLE: Variance analysis of smart pump settings vs EHR documentation in a non-integrated environment

AUTHORS: Sherwyn Tenia, Terry Bosen, Diana Mulherin, Joshua Sellers

OBJECTIVE: Explain the limitations and error potential associated with nursing staff manually programming smart pumps and manually documenting in the EHR.

SELF ASSESSMENT QUESTION: How does manual documentation within the EHR compare to data generated by smart pumps?

BACKGROUND: Intravenous medications are associated with up to 56% of all medication errors. Technologies such as barcode-assisted medication administration and infusion pumps (i.e., smart pumps) are utilized in most health systems across the United States to minimize the number of errors observed with intravenous medications. Smart pump technology allows for safeguards such as limiting the maximum rate at which a medication can be infused, preventing the delivery of incorrect medication concentrations, and providing detailed information of how much medication a patient has received. At Vanderbilt University Adult Hospital (VUAH), we currently rely on nursing staff to manually program smart pumps based on the order that is entered in the electronic health record (EHR). Previous studies show that this practice increases the workload for nursing staff with many medications taking over 15 keystrokes to program. Manual programming of the smart pump can also lead to transcription errors due to factors such as high workload volumes, high patient acuity and the complexity of the medication being programmed.

METHODOLOGY: This is a retrospective review of patients who received select infusions between September 2020 and December 2020. Inclusion criteria included patients admitted to VUAH and received a heparin, insulin or propofol infusion. Exclusion criteria included if the infusion lasted less than 12 hours. The primary outcome was the variance between nursing documentation and administration data generated from smart pumps. Secondary patient outcomes included incidence of over-sedation, incidence of hypoglycemia and incidence of clinically significant bleeding due to programming errors.

RESULTS: Smart pump changes were documented within 30 minutes for 73.6% of infusions. 38.7% of all infusion had a documentation error and 4.9% had a programming error. 8.9% of the heparin infusion were associated with a major bleed, 18.4% of insulin infusions with hypoglycemia and 10.3% of propofol with over sedation. Heparin and insulin infusions accounted for the majority of documentation within 15 minutes, but also the majority of additional documentation done by nursing staff.

CONCLUSIONS: There was a 40.5% error rate for documentation and smart pump programming even though 73.6% of infusions were documented within 30 minutes. Implementing smart pump interoperability will help reduce the error rate and time spent by nursing staff. programming and documenting infusions.

PRESENTation: https://youtu.be/fCFdItonR_c

O The Effect of Immunotherapy on Brain Metastases in Non-Small Cell Lung Cancer

Presenters: Edward Lee

TITLE: The Effect of Immunotherapy on Brain Metastases in Non-Small Cell Lung Cancer

AUTHORS: Edward Lee, PharmD; Tyler Beardslee, PharmD, BCOP; Christine Davis, PharmD, BCOP; Jennifer Carlisle, MD

SELF ASSESSMENT QUESTION: What were the most common sites of disease progression in patients with recurrent or metastatic NSCLC receiving IO therapy?

Background/Purpose: About 10-40% of patients with non-small cell lung cancer (NSCLC) will develop brain metastases during the course of their disease. Current approaches to management of brain metastases in these patients include whole brain radiation therapy and local surgery. Despite these measures, the expected median survival in these patients ranges from 2.4 – 4.8 months. The addition of immunotherapy to traditional platinum doublet chemotherapy showed significant improvements in both overall survival and progression-free survival in patients with advanced (NSCLC). However, the effect of immunotherapy on the progression of brain metastases in this patient population is unknown. Ongoing trials are being conducted to explore the efficacy of immunotherapy in the setting of brain metastases in patients with NSCLC that suggest possible benefit, but no definitive data are available at this time. This retrospective chart review of patients at the Winship Cancer Institute of Emory University Hospital aims to further explore the effect of immunotherapy on brain metastases in patients with NSCLC.

Methodology: A retrospective chart review including patients at least 18 years of age with recurrent or metastatic NSCLC that received or are currently receiving treatment with at least one of the following modalities were included: (1) platinum doublet chemotherapy, (2) immunotherapy, defined as either a programmed cell death protein -1 (PD-1) or programmed cell death protein ligand-1 (PD-L1) inhibitor. The primary objective of this study is to examine the progression of brain metastases between populations that were treated with immunotherapy versus chemotherapy versus combination immunotherapy and chemotherapy. Secondary objectives include the comparing the progression of brain metastases between patients receiving chemotherapy alone versus immunotherapy alone versus combination chemotherapy and immunotherapy, progression of liver metastases, progression of metastases to other sites of the body (i.e. bone, thoracic lymph nodes), the clinical benefit of treatment (defined as the amount of time a patient remains on treatment prior to disease progression or initiation of a new agent), and immunotherapy-associated adverse effects.

Results: A total of 123 patients were eligible for analysis. 43 patients received immunotherapy alone and 80 patients received combination immunotherapy and chemotherapy. Baseline characteristics were similar between groups. There was no significant difference in the progression of brain metastases between the immunotherapy alone arm and combination immunotherapy-chemotherapy arm (16% vs 11%, $p=0.506$). No differences in the rate of liver metastases (9% vs 6%, $p=0.722$) or metastases to other parts of the body (23% vs 39%, $p=0.053$) were observed. Most patients had a clinical benefit of >12 months. Rates of discontinuation due to adverse drug reactions, the need to start immunosuppressive therapy due to immune-related adverse events, and the need to start thyroid replacement were similar between groups.

Conclusion: Immunotherapy monotherapy results in comparable rates of disease progression compared to combination chemotherapy and immunotherapy.

Presentation Objective: Describe the effect of immunotherapy on the progression of brain metastases in patients with NSCLC.

Self Assessment Question Answer: bones, thoracic lymph nodes, contralateral lung

Presentation Link: <https://youtu.be/IXqMtpovRk>

B Evaluation of Clinical Pharmacist Utilization of Cardioprotective Antidiabetic Agents in Patients with Diabetes

Presenters: Cody Parker

TITLE: Evaluation of Clinical Pharmacist Utilization of Cardioprotective Antidiabetic Agents in Patients with Diabetes

AUTHORS: Cody Parker, Grace Simpson, Joseph Crosby, Jasmyn Ellison, Allison Presnell

OBJECTIVE: Describe the utilization of cardioprotective antidiabetic medications by a clinical pharmacist working in collaboration with a physician in the primary care setting.

SELF ASSESSMENT QUESTION: What is a class of antidiabetic medications that clinical pharmacists utilize for improving cardiovascular outcomes in the primary care setting?

BACKGROUND: Determine the utilization of cardioprotective antidiabetic medications by a clinical pharmacist working in collaboration with a physician in a primary care setting

METHODOLOGY: A computer-generated list identified adult patients with type II diabetes mellitus with office visits from September 2019 to February 2020 at three primary care offices in the St. Joseph's/Candler Health System.

Patients with cardiovascular disease or risk factors were then stratified based on patient encounters with a physician only or collaborative care from a physician and a clinical pharmacist. Data was collected on medication usage and change in hemoglobin A1c during the study period.

RESULTS: A total of 232 patients were identified in the study period. Of the 116 patients evaluated in the physician only group, 29 (25%) received a cardioprotective antidiabetic medication. Of the 116 patients in the physician and clinical pharmacist group, 66 (56.9%) received a cardioprotective antidiabetic medication. In the physician only group, 39 patients (33.6%) had a reduction in A1c versus 62 patients (53.4%) in the physician and clinical pharmacist group. The average A1c percent reduction in the physician and clinical pharmacist group was 1%. There were 49 medication access issues resolved in the physician and clinical pharmacist group.

CONCLUSIONS: Under the collaborative care of a physician and clinical pharmacist, cardioprotective antidiabetic medications were utilized more frequently, there was a greater reduction in A1c, and a clinically relevant number of medication access issues were resolved.

Link to presentation:

https://youtu.be/zlpeUhFA_U0

Presenters: Jacqueline Waller

TITLE: Implementing VIONE into Patient Aligned Care Teams with Clinical Pharmacy Specialists

AUTHORS: Jacqueline Waller, Lauren Rass, Lynsey Neighbors, Molly Howard

OBJECTIVE: Identify the impact of a CPS utilizing VIONE resources to optimize patient care and safety

SELF ASSESSMENT QUESTION: According to the VIONE methodology, every medication should have a specific what?

BACKGROUND: Polypharmacy is defined by The World Health Organization (WHO) as “the administration of many drugs at the same time or the administration of an excessive number of drugs.” Polypharmacy is associated with increased risk of medication-related adverse outcomes. To help decrease polypharmacy and the number of adverse events associated with it, the Veterans Health Administration launched VIONE. VIONE is a medication deprescribing tool, which is designed to guide clinicians in determining if a medication is Vital, Important, Optional, Not indicated, and that Every medication has a specific indication or diagnosis.

METHODOLOGY: A pharmacy resident contacted high risk patients to determine their interest in completing a VIONE visit with a clinical pharmacy specialist (CPS). Patients were identified using the VIONE dashboard, and those who had a care assessment need (CAN) score of at least 90 and were prescribed at least 30 medications were contacted first. During the VIONE visit, the CPS conducted medication reconciliation utilizing the VIONE progress note template. The CPS deprescribed, optimized, or initiated medications as appropriate within their scope of practice.

RESULTS: A total of 20 Veterans were scheduled for a VIONE visit with a PACT CPS. The primary outcome was the average number of pre- and post-VIONE active medications. The average pre-VIONE medication number was 35 (28-53) and the post-VIONE average was 30 (23-48) medications. On average, seven medications were discontinued during the VIONE visit. Throughout the 20 visits, there were 41 total CPS interventions made (13 non-pharmacologic and 28 pharmacologic). 70% (14/20) of the Veterans were scheduled for follow-up visits with the CPS.

CONCLUSIONS: VIONE is an effective method of decreasing unnecessary or inappropriate medications. The VIONE visits resulted in numerous follow-up visits to manage the patients' chronic disease states. VIONE is a resource that can be used to decrease polypharmacy, promote medication safety, and identify high risk patients for pharmacist intervention.

Link to Presentation: [Implementing VIONE into PACT Clinic with CPS within a Veterans Affairs Health Care System - YouTube](#)

Y Identifying barriers to utilization of a medication access program among referred patients surveyed after discharge from an acute care hospital

Presenters: Paige Greene

TITLE: Identifying barriers to utilization of a medication access program among referred patients surveyed after discharge from an acute care hospital

AUTHORS: Paige E. Greene, T. Wells, A. Wright, J. Wood, J. McLellan, E. Hudson, M. Pitt

OBJECTIVE: At the conclusion of this presentation, the participant will be able to identify barriers to utilization of a medication access program among uninsured patients.

SELF ASSESSMENT QUESTION: All of the following are patient-reported barriers to utilization of a medication access program EXCEPT:

BACKGROUND: For uninsured residents of select counties in North Carolina, the Cumberland County Medication Access Program (CCMAP) provides prescriptions at no cost. Uninsured patients hospitalized at Cape Fear Valley Medical Center are referred to CCMAP at discharge by Cape Fear Valley Health System employees, primarily Coordination of Care personnel and Outpatient Pharmacy personnel. The purpose of this study is to describe the most frequently reported utilization barriers among surveyed patients referred to CCMAP following discharge from Cape Fear Valley Medical Center.

METHODOLOGY: This is a single-center, survey-based, descriptive research study. Referring Cape Fear Valley Health System employees collected the Medical Record Number (MRN) of patients referred to CCMAP at discharge between 10/22/2020 and 12/31/2020. These patients were contacted by a research team member via telephone at least 30 days after discharge to voluntarily participate in a survey regarding their ability to receive prescriptions from CCMAP after discharge. Patient-reported utilization barriers and demographics were recorded. A similar survey was voluntarily completed by referring Health System employees. Employee-reported utilization barriers were collected to identify discrepancies in perceived utilization barriers among discharged patients and referring Health System employees.

RESULTS: There were 69 patients referred to CCMAP at discharge by Outpatient Pharmacy personnel. Of these, 17 patients met inclusion criteria and completed the survey. Approximately 35% of patients reported their greatest utilization barrier to be uncertainty about how to apply for CCMAP. Additionally, 25 surveys were completed by referring Outpatient Pharmacy personnel. Of these, 56% of participants reported they believe the greatest utilization barrier to be patient uncertainty about how to apply for CCMAP.

CONCLUSIONS: Uninsured patients discharged from Cape Fear Valley Medical Center could benefit from increased assistance with completing CCMAP applications and enrollment with the program prior to discharge to improve continuity of care.

PRESENTATION LINK: <https://youtu.be/HHLfNwTVLHE>

R Development and Implementation of a Ketamine Protocol for Continuous Sedation in the ICU

Presenters: Chris Nixon

TITLE: Development and Implementation of a Ketamine Protocol for Continuous Sedation in the ICU

AUTHORS: Christopher Nixon, Kenneth Boley, Mickala Thompson

OBJECTIVE: Create a new protocol utilizing ketamine for continuous sedation

SELF ASSESSMENT QUESTION: List 1 potential risk to patient safety when using ketamine for continuous sedation

BACKGROUND: Create a ketamine for continuous sedation protocol for intensive care unit (ICU) use and evaluate its impact based on pre-determined parameters

METHODOLOGY: Protocol design will be based on primary literature available as well as other institution protocols. Information gathered will be compiled and adapted to meet the needs of the Huntsville Hospital Health System. After the protocol is in place, the following parameters will be evaluated for each patient that received our protocol: time of order, duration of infusion, other sedatives at time of order, blood pressure, heart rate, supportive medications given during infusion, intensive care unit length of stay, Richmond Agitation Sedation Scale scores, and vasopressor use.

RESULTS: Six patients have received the new protocol since go-live in January 2021. 100% of patients were appropriately initiated on the protocol and had achieved a goal RASS score at 24 hours. 33% of our patients required less vasopressor use with 67% requiring a higher amount, likely due to increase in illness severity. Two patients required ketamine to be titrated off due to significant elevations in blood pressure. Two patients required supportive medication administration.

CONCLUSIONS: Ketamine for continuous sedation in the ICU is a promising adjunct sedative as demonstrated by these early results. In the future, ketamine's use should be explored in different patient populations and locations within the institution. Ketamine does present with some safety concerns but to date no safety events have caused patient harm.

R Evaluation of Anti-Epileptic Drugs for the Prophylaxis of Early Post-Traumatic Seizures in Critically Ill Pediatric Patients with Traumatic Brain Injury

Presenters: Madyson Allard

TITLE: Evaluation of Anti-Epileptic Drugs for the Prophylaxis of Early Post-Traumatic Seizures in Critically Ill Pediatric Patients with Traumatic Brain Injury

AUTHORS: Madyson Allard, Whitney Moore, Juwon Yim

OBJECTIVE: Identify the role of early post-traumatic seizure (EPTS) prophylaxis following traumatic brain injury (TBI) in pediatric patients.

SELF ASSESSMENT QUESTION: Is EPTS prophylaxis recommended following TBI in pediatric patients?

BACKGROUND: TBI is a leading cause of death and disability in pediatric patients. A complication of TBI is EPTS, defined as seizures that occur within seven days of injury. These provoked seizures can increase the risk of brain damage and result in greater neurologic deficits. Current guidelines recommend seizure prophylaxis in patients with TBI, but do not recommend any specific therapeutic agent(s). This study will explore whether the use of different seizure prophylaxis agents decreases the incidence of EPTS.

METHODOLOGY: This study was a retrospective chart review of 239 patients admitted to a Children's Healthcare of Atlanta Pediatric Intensive Care Unit from January 2013 to December 2019 for a moderate to severe TBI (Glasgow Coma Scale \leq 12). The primary outcome was the incidence of EPTS in patients with and without seizure prophylaxis.

RESULTS: Of the 239 patients included in the study, 96 received seizure prophylaxis. Eleven of these patients experienced EPTS (11.5%), compared to 28/143 (19.6%) that did not receive prophylaxis resulting in an odds ratio of 0.47. The most common anti-epileptic used for prophylaxis was levetiracetam (n=76) followed by fosphenytoin (n= 19). Seizure incidence was comparable with 7 patients having reported a seizure in the levetiracetam group (9.2%), compared to 2 patients (10.5%) in the fosphenytoin group.

CONCLUSIONS: Seizure prophylaxis decreases the risk of EPTS, when compared to patients that did not receive prophylaxis. There was no statistically significant difference in choice of prophylactic agent.

LINK: <https://pro.panopto.com/Panopto/Pages/Viewer.aspx?tid=e943f2ce-9274-4008-a02f-ad0d0188f5bb>

Presenters: Taylor Servais

TITLE: Evaluation of the Management of Alcohol-Associated Vitamin and Electrolyte Deficiencies in the Emergency Department

AUTHORS: Taylor Kaye Servais, Hunter Ingoe, Roger Reeder, Alexas Polk

OBJECTIVE: At the conclusion of my presentation, the participant will be able to explain the potential decrease in time to thiamine administration associated with individualized therapy compared to banana bags.

SELF ASSESSMENT QUESTION: Is the administration of individualized thiamine versus banana bags associated with a shortened time to administration?

BACKGROUND: Recent literature evaluated the justification for intravenous (IV) administration of compounded thiamine, folic acid, multi-vitamin, and fluids (banana bags) for patients with alcohol use disorder. Evidence suggests that not all patients warrant therapy with banana bags and instead, components can be dosed individually based on symptom severity determined by the Clinical Institute Withdrawal Assessment of Alcohol (CIWA) score. The objective of this study is to evaluate the impact of banana bags versus individual thiamine therapy for alcohol associated deficiency replacement on the time to thiamine administration and cost savings.

METHODOLOGY: This two-phase, retrospective, observational review included patients > 18 years old who presented to the emergency department with an order for thiamine as part of alcohol-associated deficiency replacement. The first phase of the study assessed IV thiamine orders for deficiency replacement based on current protocols, followed by the evaluation of individual thiamine therapy based on symptom severity in phase two. The electronic medical record system was used to complete the retrospective chart review of all eligible patients. All data was recorded without patient identifiers and maintained confidentially. Documentation in the electronic medical record and the time to thiamine administration in part one versus part two of the study was used to determine if individualized thiamine therapy led to shortened time to administration and cost savings.

RESULTS: A total of 126 patients were evaluated in this study. Replacement via administration of individual components with thiamine dosing and route of administration determined by the patient's symptom severity led to a significant decrease in time to thiamine administration ($p=0.0001$) and was associated with a medication cost savings of approximately \$1,700 over a 3 month period.

CONCLUSIONS: In alcohol use disorder patients, vitamin and electrolyte replacement via administration of individual components was associated with decreased time to thiamine administration and reduced medication cost savings compared to banana bags therapy.

PRESENTATION LINK: <https://youtu.be/-pXCDRhPXXk>

Presenters: Cara Nys

TITLE: Antimicrobial Stewardship for Urinary Tract Infection in Three Emergency Departments

AUTHORS: Nys C, Funaro J, Fischer K, Shoff C, Shroba J, Toler R, Liu B, Lee H, Moehring R, Wrenn R

OBJECTIVE: Describe the methodology and impact of a multi-faceted AS intervention on the rate of guideline prescribing for UTIs in the ED.

BACKGROUND: Broad-spectrum antibiotics are often prescribed to patients presenting to the emergency department (ED) with urinary tract infection and pyelonephritis (UTI). UTIs are often misdiagnosed and lead to unnecessary antibiotic use. Thus, there is a critical need to evaluate antimicrobial stewardship (AS) tactics targeting UTI prescribing in this setting.

METHODOLOGY: We conducted a prospective evaluation of a two-phase AS intervention outlining appropriate UTI diagnosis and management across three EDs. The phase 1 intervention included introduction of a urine-specific antibiogram, education, and department-specific feedback on UTI diagnosis and antibiotic prescribing. Phase 2 included re-education, as well as department- and provider-specific feedback. Eligible patients included adults diagnosed with UTI and prescribed an antibiotic in the ED. Patients were excluded if they were admitted. The primary outcome was the rate of guideline-directed antibiotic use, which was assessed using an interrupted time series analysis with 2-week intervals. The study included a pre-intervention period (11/2018 to 11/2019), phase 1 (11/2019-8/2020), and phase 2 (9/2020-2/2021).

RESULTS: Overall, 10,426 distinct encounters were included. There was a 15% initial increase in guideline-directed antibiotics prescribing in Phase 1 compared to the pre-intervention period ($p=0.02$). With every two-week period during phase 2, there was a 3% increase of guideline-directed prescriptions ($p=0.001$).

CONCLUSIONS: Our multifaceted stewardship intervention involving treatment algorithms, education, and provider-specific feedback was effective in increasing guideline-directed antibiotic choices in the ED.

SELF ASSESSMENT QUESTION: What is an example of an antimicrobial stewardship intervention?

Link to presentation: https://youtu.be/m6ln400_xOU

Presenters: Sarah Adams

TITLE: Optimizing Pre-Operative Antibiotic Use Through Improved Penicillin Allergy Documentation

AUTHORS: Sarah Adams, Caroline Gresham, Andy Ariail, Karen Curzio Rodeghiero

OBJECTIVE: Describe the impact of a penicillin allergy questionnaire on pre-operative antibiotic use.

SELF ASSESSMENT QUESTION: Does the improvement of penicillin allergy documentation in the electronic health record increase the use of pre-operative cefazolin in penicillin allergic patients?

BACKGROUND: Penicillin allergy documentation is often incomplete in the electronic health record (EHR). Cefazolin, a first-generation cephalosporin, is the most common surgical prophylaxis antibiotic recommended in national and institutional guidelines in orthopedic, cardiovascular, neurologic and hernia surgeries. Patients with a reported penicillin allergy often receive sub-optimal pre-operative antibiotics, such as vancomycin or clindamycin, due to concern for penicillin allergy cross-reactivity with cefazolin. The purpose of this study is to improve the documentation of penicillin allergies in the EHR. The investigators hypothesize that more detailed documentation of penicillin allergies by pre-admission staff, will increase the use of pre-operative cefazolin.

METHODOLOGY: This was a single-center, interventional study comparing pre-operative antibiotic selection in patients with a self-reported penicillin allergy admitted for an elective orthopedic, cardiovascular, neurologic or hernia surgery before and after implementation of a penicillin allergy questionnaire. Nursing staff followed a penicillin allergy questionnaire and documented the allergy in the EHR. The primary outcome was the number of patients that received cefazolin for surgical prophylaxis before and after intervention. Secondary outcomes were the number of patients with surgical site infections occurring within 30 days of surgery, number of patients with detailed allergy documentation, and number of patients that received the full antibiotic dose prior to first surgical incision.

RESULTS: 100 patients were included in the pre-intervention group, while 85 patients were included in the post-intervention group. Less patients in the pre-intervention group received cefazolin pre-operatively compared to the post-intervention group (13 [13%] vs. 35 [41.2%], $p < 0.001$). There was no difference in the incidence of surgical site infection at 30 days after surgery (3 [3%] vs. 1 [1.2%], $p = 0.63$). Two patients had detailed allergy documentation in the pre-intervention group, while 43 patients had detailed documentation in the post-intervention group (2% vs. 50.6%, $p < 0.001$). 25 patients in the pre-intervention group received the full pre-operative antibiotic dose or infusion prior to first incision compared to 41 patients in the post-intervention group (25% vs. 48.2%, $p = 0.001$).

CONCLUSIONS: Use of pre-operative cefazolin increased in patients with a reported penicillin allergy after implementation of a penicillin allergy questionnaire. More patients had detailed allergy documentation in the post-intervention group with respect to reaction, when the reaction occurred, and other tolerated beta-lactam antibiotics. There was an increase in the number of patients who received the full pre-operative antibiotic dose prior to first incision, but there was no statistical difference in the incidence of surgical site infections at day 30 post-operation.

Presenters: Kailey Hoots

TITLE: Evaluation of insulin use for treatment of hyperkalemia

AUTHORS: Kailey Hoots, Lauren Chambers, Joseph Davis

OBJECTIVE: To assess the risk of hypoglycemia in VMC patients who are treated with full-dose (10 units) versus reduced-dose (less than 10 units) insulin in the setting of hyperkalemia. Patients with CKD will be stratified to identify hypoglycemia differences between the two groups.

SELF ASSESSMENT QUESTION: Should pharmacists promote reduced-dose insulin for potassium shifting in patients with renal dysfunction?

BACKGROUND: The recommended dose of regular insulin for potassium shifting is 10 units intravenously given in combination with 25 grams of intravenous dextrose to prevent hypoglycemia. Since insulin is removed from the body via glomerular filtration and peritubular diffusion, insulin clearance diminishes in chronic kidney disease (CKD). This increases the risk of hypoglycemia due to extended insulin half-life. The purpose of this study was to compare standard dose insulin (10 units) to low dose insulin (less than 10 units) regarding hypoglycemia and efficacy in reducing potassium levels. In addition, the study will identify and compare hypoglycemia occurrence rates when insulin is used for potassium shifting in the general population versus those with CKD or acute kidney injury (AKI).

METHODOLOGY: This single-center retrospective review included adult patients with hyperkalemia (potassium >5 mEq/L) who received insulin for potassium shifting between August 1st, 2019 and August 31st, 2020. Patients were excluded if they received renal replacement therapy prior to subsequent potassium measurement. The primary endpoint was the rate of hypoglycemia (blood glucose < 70 mg/dL) in patients treated with full-dose (10 units) versus reduced-dose (<10 units) insulin for hyperkalemia. Secondary endpoints included the average dose of insulin, extent of potassium lowering in standard-dose versus reduced dose insulin groups and hospital length of stay. The primary and secondary endpoints will be analyzed by comparing mean values, chi-squared and two-sample t-tests. For all comparisons, statistical significance will be defined as $p < 0.05$.

Link to presentation: <https://youtu.be/nkQXZCaUoSA>

Presenters: Aqsa Adnan

TITLE: Evaluation on the Efficacy of Testosterone Suppression with Eligard® versus Lupron®

AUTHORS: Aqsa Adnan, Aseala Abousaud, Sarah Caulfield, Bradley Carthon, Jeffrey Switchenko

OBJECTIVE: The primary objective of this research is to evaluate the median time (months) patients are not castrate while on subcutaneous versus intramuscular leuprolide in patients with known prostate cancer. Secondary outcomes are to explore differences in progression free survival and overall survival. This data will be used to identify potential factors that contribute to patients not responding to Eligard® therapy.

SELF ASSESSMENT QUESTION: How does the efficacy of utilizing Eligard versus Lupron for Prostate Cancer compare?

BACKGROUND: Prostate cancer is perpetuated by androgens that are essential for prostate cancer cells proliferation and growth. Androgen deprivation therapy (ADT) lowers androgen secretion by the testes through medical castration or by surgical castration. For this reason, these synthetic analogues of LHRH have become the mainstay of treatment to achieve androgen suppression. Leuprolide acetate, a LHRH analogue, has an increase duration of action and affinity at the pituitary receptor with known potent inhibition of androgen production. Patients administered leuprolide acetate will have an initial rise in the luteinizing hormone (LH) and follicle stimulating hormone (FSH), which thereby leads to a transient increase in gonadal steroids: testosterone, dihydrotestosterone in males and estrone and estradiol in premenopausal females. However, with continuous administration of ADT, these elevated levels will begin to decline and result in lower FSH and LH levels and serum testosterone below castrate threshold. Conclusion: Patient were not found to have a difference in time not castrate but were found to have statistical significance in the progression free survival.

Presenters: Keith Keddington

TITLE: Impact of an Inpatient Pharmacy Transplant Medication Consult Service on Non-Transplant Services

AUTHORS: Keith Keddington; Mackenzie Magid; Katherine Mieure; Meredith Hollinger; Marc Reichert

OBJECTIVE: Describe a novel service of transplant medication management to decrease immunosuppressant related medication errors in the inpatient setting.

SELF ASSESSMENT QUESTION: What resources are available to minimize the risk of inpatient immunosuppressant drug-drug interactions?

BACKGROUND: Solid organ transplant patient care is complicated by high-risk medication regimens with the potential for adverse effects, often secondary to immunosuppressant drug-drug interactions (I-DDI). Transplant pharmacists serve as immunosuppression experts on dedicated transplant teams, but their expertise is not readily available to clinicians of other specialties who may encounter patients with a history of transplant. When transplant patients are admitted to non-transplant inpatient services, the potential for I-DDIs may increase due to lack of medication familiarity. Inpatient consultation services are common for specialty care, but a transplant pharmacy specific inpatient consultation service is not described in literature. The purpose of this study is to evaluate if an inpatient transplant pharmacist consultation service can reduce I-DDIs in patients with a history of solid organ transplant admitted to a non-transplant service.

METHODOLOGY: The primary objective is to compare the number of I-DDIs before and after the implementation of a transplant pharmacy consult service. Secondary objectives include I-DDIs severity, time unresolved, immunosuppressive serum drug levels, and medication error safety event reports. Eligible patients are admitted to a non-transplant service, have a history of solid organ transplant, and orders for systemic immunosuppressant medications, namely tacrolimus, mycophenolate, azathioprine, cyclosporine, sirolimus, everolimus, and belatacept. In the consultation group, transplant pharmacists review qualifying patients and recommend medication adjustments when applicable. A historical comparator of pre-consultation encounters are matched 1:1 on relevant characteristics. Charts are reviewed by study investigators for primary and secondary objectives.

RESULTS: In Progress

CONCLUSIONS: This explores the impact of a pharmacist-driven inpatient transplant consultation service. Results from this study have the potential to provide data supporting the implementation of a transplant pharmacist consultation in the inpatient setting to reduce medication errors.

Presenters: Shelby Brooks

TITLE: Effect of a clinical decision support tool on outpatient antibiotic prescribing for acute otitis media infections – Phase I

AUTHORS: Shelby Brooks, PharmD, BCPS; Sarah Eudaley, PharmD, BCPS; Rebecca Higdon, MPH; Julie Jeter, MD; Shaunta' Chamberlin, PharmD, BCPS, FCCP

OBJECTIVE: Evaluate prescribing patterns for acute otitis media infections in a family medicine resident clinic prior to implementation of a clinical decision support tool.

SELF ASSESSMENT QUESTION: What areas of prescribing (medications, duration, doses) can be improved by implementing a CDS tool?

BACKGROUND: A significant portion of inappropriate antibiotic prescribing in the outpatient setting occurs in the pediatric population, with 1 in 5 pediatric ambulatory visits resulting in antibiotic prescriptions. Implementation of clinical decision support tools has been endorsed by the Centers for Disease Control Core Elements of Outpatient Antimicrobial Stewardship to help combat inappropriate prescribing. The purpose of this study is to evaluate antibiotic prescribing for acute otitis media before and after implementation of a clinical decision support tool.

METHODOLOGY: Phase I will be a cross-sectional study of children aged 6 months to 18 years old diagnosed with acute otitis media (defined by ICD-10 codes) at an outpatient family medicine resident clinic between January 1 – October 31, 2020. Pertinent exclusion criteria are patients with a competing bacterial diagnosis that warrants antibiotic therapy (urinary tract infections, strep throat, pneumonia), receipt of an antibiotic within 30 days prior to the visit, history of tympanostomy tubes, documented anaphylactic medication allergies prior to office visit, and recurrent otitis media infections. The primary endpoint for phase I will be prescribing trends of antimicrobial therapy for acute otitis media. Secondary endpoints will include proportion of patients receiving guideline-directed antimicrobial therapy and the proportion of patients receiving guideline-directed duration of therapy. Descriptive statistics will be utilized to describe the study population, as well as the current prescribing rates of different antibiotics for acute otitis media.

RESULTS: 64 patients fit inclusion criteria for the pre-implementation phase of the study. Approximately 50% of the population was white, while approximately 30% of the population was Hispanic/Latino. The remaining 20% included Asians, African Americans, Native Hawaiian or other. The average age of patients was 3.59 ± 4.30 months and 30% of the patients had seasonal allergies documented prior to their office visit for otitis media. None of the patients included has antibiotic allergies documented prior to their otitis media visit. In children aged 24 months and older with bilateral acute otitis media, none of them presented with otorrhea, but watchful waiting was not utilized in any of these patients even though it is guideline recommended to do so. In children aged 6-24 months with bilateral acute otitis media, none of them presented with otorrhea, but due to age and bilateral infection, initial antibiotics are warranted, but watchful waiting was used in 1 patient. In children with unilateral and severe symptoms, watchful waiting was utilized in 2 patients, instead of initial antibiotics. Appropriate first-line antibiotics were used in 90-100% of the population, while appropriate dosing was only utilized in 60-80% of the population.

CONCLUSIONS: Implementation of a clinical decision support tool in an outpatient family medicine resident will assist with appropriate utilization of watchful waiting, antibiotic dosing and treatment duration of acute otitis media.

B Evaluating student pharmacist perception and effectiveness of learning through face-to-face, online, and hybrid instructional methods

Presenters: Hannah Duncan

TITLE: Evaluating student pharmacist perception and effectiveness of learning through face-to-face, online, and hybrid instructional methods

AUTHORS: Hannah Duncan, Jenni Beall, B. DeeAnn Dugan, Roger Lander, Michael Kendrach

OBJECTIVE: Compare student pharmacist-reported perceptions of face-to-face, online, and hybrid instructional methods.

SELF ASSESSMENT QUESTION: What preference do student-pharmacists have regarding instructional method used in the classroom (face-to-face, online, and hybrid)?

BACKGROUND: A key element of pharmacy curricular accreditation standards includes utilization of current technologies for the improvement of curriculum. In the midst of the COVID-19 pandemic, many discussions regarding implementation of hybrid and/or online instructional methods are being accelerated. The purpose of this project is to assess student pharmacist perception and effectiveness of face-to face, online, and hybrid instructional methods.

METHODOLOGY: An email with a voluntary, anonymous 22-question survey was sent to the second-year and third-year student pharmacists in late November/early December 2020. The survey remained open for responses for 4-weeks, with a reminder email sent on day 21. Only surveys completed in full will be eligible for inclusion. Assessment of student grades will be collected for the class at the conclusion of the fall 2020 semester; individual grades will not be assessed. Descriptive statistics were used to explain preliminary collected data.

RESULTS: Preliminary results of 53 second-year and 56 third-year student pharmacists were assessed. Sixty-nine percent of students responded that instructional method made a difference in their performance (grade in class), with sixty-six percent of students selecting that they performed best in a face-to-face instructional setting. Baseline GPAs to-be compared to final GPAs for fall 2020 semester.

CONCLUSIONS: Preliminary survey results reveal that majority of student pharmacists prefer face-to-face instructional methods compared to either hybrid instruction or online-only instruction. While online learning provides flexible learning time and more convenience, students often stated they lacked interest and found it more difficult to learn in the online learning setting.

C Evaluation of guideline-directed utilization of intravenous iron in patients with heart failure with reduced ejection fraction in an inpatient setting

Presenters: Carrie Ellison

TITLE: Evaluation of guideline-directed utilization of intravenous iron in patients with heart failure with reduced ejection fraction in an inpatient setting

AUTHORS: Carrie Ellison; Sarah Blandy; Amanda Moyer

OBJECTIVE: To describe the utilization of intravenous iron in patients with heart failure with reduced ejection fraction at an academic medical center.

BACKGROUND: Intravenous (IV) iron repletion for patients with heart failure is currently recommended in guidelines due to noted benefits in improved quality of life, increased exercise tolerance, and reduction in patient-reported symptoms. While these recommendations were mostly based on evidence from two randomized controlled trials in the ambulatory setting, a recent trial in hospitalized patients with acute heart failure confirmed a reduction in heart failure-related hospitalizations. The purpose of this study was to evaluate intravenous iron utilization in patients with heart failure with reduced ejection fraction (HFrEF) in the inpatient, cardiac hospital setting.

METHODOLOGY: This single-center, observational, retrospective chart review was conducted in adult patients with HFrEF who received intravenous iron during hospitalization. Patients who received blood transfusions were excluded. Charts were reviewed for demographic information, ejection fraction, iron studies, and iron repletion characteristics. The primary objective of the study included the evaluation adherence to guideline directed criteria for iron deficiency defined as ferritin <100 mg/L or ferritin 100 – 300mg/L + Tsat <20%. Secondary objectives include evaluation of intravenous iron replacement completeness stratified by study site iron products and discharge recommendations for completion of IV iron if needed.

RESULTS: During the review period, 72% (n=36) of HFrEF patients who received IV iron were concordant with guideline recommendations. During hospitalization patients had approximately 67% with iron sucrose having greater repletion at ~74% during hospitalization. There was low incidence of HF readmission at thirty days with four total.

CONCLUSION: Majority of patients were repleted appropriately per guideline recommendations. While patients had greater repletion with iron sucrose, initiating IV iron earlier in the hospitalization could mitigate this difference given average length of stay to first dose was four days.

SELF ASSESSMENT QUESTION: What is/are the benefit(s) of intravenous iron in patients who have heart failure with reduced ejection fraction?

Presentation link: <https://youtu.be/IUD4AnU-v9k>

Y Comparison of Patient Adherence with Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers Pre- versus Post-COVID-19 Warnings

Presenters: Cara Beth Brann

TITLE: Comparison of Patient Adherence with Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers Pre- versus Post-COVID-19 Warnings

AUTHORS: Cara Beth Brann, Jonathan Harward, Charles Herring, Katie Trotta

OBJECTIVE: To assess changes in medication adherence to angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs), and calcium channel blockers (CCBs) before and after COVID-19 harm-related warnings

SELF ASSESSMENT QUESTION: Should community pharmacies expect changes in medication adherence, following harm-related warnings during a pandemic?

BACKGROUND: Determine the effect of online warnings of COVID-19 infection, related to ACEI/ARB therapy, on medication adherence

METHODOLOGY: Eligible patients were those at least 18 years of age who filled a prescription at an independent pharmacy in Raleigh, NC for an ACEI, ARB, and/or CCB between September 11, 2019 to March 10, 2020 or March 11, 2020 to September 11, 2020. Adult patients at long-term care facilities serviced by the pharmacy were excluded. Medication adherence was measured using medication possession ratio (MPR), as determined by the pharmacy's dispensing software, PioneerRX, pre- and post-COVID-19 harm-related warnings. In order to detect a 3% difference in MPR for ACEI/ARB therapy with 83% power, 3,400 prescriptions were needed. In order to detect a 5% difference with 80% power, 1,140 prescriptions for CCBs were needed.

RESULTS: A total of 1,294 prescriptions for ACEI/ARB therapy were dispensed pre-warning and 1,469 post-warning. The average MPR for ACEI/ARB pre-warning was 0.8974 and 0.9020 post-warning (95% CI, -0.0187 to 0.0094, p-value 0.5223). As a comparator, the average MPR for CCB pre-warning was 0.9221 and 0.9106 post-warning (95% CI, -0.0093 to 0.0324, p-value 0.2789).

CONCLUSIONS: In this cohort of patients at Josefs Pharmacy in Raleigh, NC, there was no difference in medication adherence for ACEI/ARB therapy pre- versus post-COVID-19 warnings. Sample size was insufficient to reach power for either group.

Presentation Access: <https://youtu.be/nES1mlsFM3U>

R Effect of Adjunct Enteral Opioids on Pain Scores in Mechanically Ventilated Patients with COVID-19

Presenters: Joanna He

TITLE: Effect of Adjunct Enteral Opioids on Pain Scores in Mechanically Ventilated Patients with COVID-19

AUTHORS: Joanna He, Joeanna Chastain

OBJECTIVE: List patient-specific reasons for IV analgesic and sedative shortages during the COVID-19 pandemic.

SELF ASSESSMENT QUESTION: Which of the following is a reason for increased IV analgesic and sedative use due to the COVID-19 pandemic?

BACKGROUND: Enteral opioids may be an alternative strategy for pain management during periods of IV fentanyl shortage due to COVID-19. This study aimed to determine the effect of adjunct enteral opioids on pain scores in mechanically ventilated COVID-19 patients receiving continuous IV fentanyl.

METHODOLOGY: Mechanically ventilated COVID-19 patients hospitalized from February through November 2020 who received adjunct enteral opioids while on continuous IV fentanyl were included in this study. The primary endpoint compared the percentage of Critical Care Pain Observational Tool (CPOT) scores at goal before and after the addition of enteral opioids. Secondary endpoints included the percentage of Richmond Agitation Sedation Scale (RASS) scores within goal as well as the analgesics and sedatives used and their total standardized equivalent doses.

RESULTS: Eighteen patients were included in this study. There were no differences in the median percentages of CPOT scores at goal before (100%, IQR 93-100) and after (100%, IQR 100-100) the addition of enteral opioids ($p=0.193$) or in the median percentages of RASS scores at goal before (100%, IQR 100-100) and after (100%, IQR 91.5-100) the addition of enteral opioids ($p=0.424$). The median daily morphine milligram equivalents of opioids decreased significantly from 714 mg (IQR 555-917) to 540 mg (IQR 298-937) after enteral opioids were added ($p=0.048$), while the median daily benzodiazepine dose increased from 0.3 midazolam equivalents/kg/day (IQR 0-0.9) to 0.4 midazolam equivalents/kg/day (IQR 0-1.2) after the addition of enteral opioids ($p=0.052$).

CONCLUSIONS: The addition of adjunct enteral opioids to continuous IV fentanyl in mechanically ventilated COVID-19 patients may lower the requirements for IV fentanyl while providing similar pain control.

Presenters: Sarah Kemerer

TITLE: Hypertonic saline sodium goals for use in cerebral edema and incidence of acute kidney injury

AUTHORS: Sarah Kemerer, Eric Shaw, Audrey Johnson

OBJECTIVE: Determine if certain sodium goals are associated with greater risk of AKI when using HTS infusions.

SELF ASSESSMENT QUESTION: Are certain sodium goals associated with greater risk of AKI?

BACKGROUND: Continuous hypertonic saline infusions are a common treatment used to reduce cerebral edema and elevated intracranial pressures. There is currently a lack of literature clearly defining sodium goals that should be targeted for efficacy and safety. Severe hyponatremia is a risk factor for acute kidney injury (AKI). This study aims to determine the safety of commonly targeted sodium goals in regards to AKI.

METHODOLOGY: This was a single-centered, retrospective, chart review approved by the Institutional Review Board. Adult patients who received hypertonic saline (HTS) infusions for at least 48 hours with serum sodium goals of 145-150, 150-155, or 155-160 mEq/L were included. Charts were reviewed from August 1st 2015, through November 30th, 2020. Patients who were pregnant, incarcerated, or with existing renal dysfunction prior to the HTS infusion were excluded. The primary outcome was incidence of AKI while hyponatremic. Secondary outcomes included hospital and intensive care unit (ICU) length of stay and mortality, hyperchloremia, renal replacement therapy, renal recovery, and duration of AKI.

RESULTS: A total of 112 patients met inclusion criteria. There were 11 patients in the 145-150 group, 72 in the 150-155 group, and 29 in the 155-160 group. The incidence of AKI was 0%, 18.1%, and 6.9% in each group respectively, which was not statistically significant (p-value: 0.128). All secondary outcomes were not statistically significant.

CONCLUSIONS: There is no significant difference in risk of AKI with different sodium goals when using HTS infusions for cerebral edema. Further studies are needed to determine if different sodium goals are associated with improved outcomes

[Link to video](#)

Presenters: My An Pham

TITLE: Evaluation of vancomycin trough-guided dosing and implementation of a new vancomycin AUC-guided dosing at a large community hospital

AUTHORS: My An Pham

OBJECTIVE: To evaluate the efficacy and safety of vancomycin trough-guided dosing and to assist in implementing the new vancomycin AUC-guided dosing at a large community hospital

SELF ASSESSMENT QUESTION: What is the incidence of acute kidney injury in patients receiving vancomycin using trough-guided dosing at our institution?

BACKGROUND: The "Therapeutic monitoring of vancomycin for serious methicillin-resistant staphylococcus aureus infections" consensus guidelines released in 2020 recommend vancomycin area under the curve (AUC)-guided dosing rather than trough-guided dosing to achieve clinical efficacy while improving patient safety. This study is conducted to evaluate the efficacy and safety of vancomycin trough-guided dosing and to assist in implementation of the new vancomycin AUC-guided dosing guidelines. The results of this study will be used next year to compare the efficacy and safety of vancomycin AUC-guided dosing.

METHODOLOGY: A retrospective chart review will be conducted on patients who received trough-guided dosing from January 2020 to March 2020. Data points will be collected to compare and evaluate the efficacy and safety of the vancomycin trough-guided dosing. The primary efficacy endpoints are the time to reach therapeutic target level, duration of vancomycin therapy, and improvement of clinical status. The primary safety endpoints are the incidence of acute kidney injury defined by KDIGO criteria. The collected data will be analyzed using descriptive statistics. This study has been approved by the institutional review board.

RESULTS: As the result of this study, percentage of patients that achieved clinical improvement was about 23% for temperature improvement and about 19.9% for improvement of white blood counts. Approximately 11.1% of patients experienced acute kidney injury while receiving vancomycin and 6.9% of patients had acute kidney injury that resulted in discontinuation of therapy.

CONCLUSIONS: After implementation of vancomycin AUC-guided dosing, future studies are needed to compare the efficacy and safety between the vancomycin AUC-guided dosing and trough-guided dosing.

Presenters: Michelle Rosado

TITLE: Impact of computerized decision support on days of antimicrobial therapy

AUTHORS: Michelle Rosado, Montgomery Green, Jonathon Pouliot

OBJECTIVE: Evaluate the impact of guideline-directed CDS on days of antimicrobial therapy based on indication

SELF ASSESSMENT QUESTION: Q: What is a tool that antimicrobial stewardship programs can utilize to improve antibiotic prescribing?

BACKGROUND: The Infectious Disease Society of America recommends integrating computerized decision support (CDS) into the Electronic Health Record as a part of antimicrobial stewardship programs. With the continual advances in technology, there is a need for more studies to address the benefit of CDS on antimicrobial prescribing. The purpose of this study is to compare the percentage of compliance with guideline recommended duration of therapy before and after implementing guideline directed indication and duration CDS during order entry.

METHODS: This study is a single-center, retrospective cohort. Data was analyzed from patients receiving selected antimicrobials before and after implementation of guideline directed CDS. The pre-implementation group includes patients from June 2019 to January 2020. The post-implementation group includes patients from February 2020 to December 2020. The primary endpoint of this study is percentage of compliance with guideline recommended duration of therapy by indication for selected antimicrobials. Secondary endpoints include hospital length of stay, rates of *Clostridioides difficile* infections, rates of antibiotic adverse events, and charting discrepancies.

RESULTS: A total of 3,362 patients met criteria for inclusion in the pre-implementation group and 3,421 patients in the post-implementation group. Patients in each group were assigned a randomly generated number and the first 200 were included in the study. The primary endpoint occurred in 30.5% (n=61) patients in the pre-implementation group and in 43.5% (n=87) patients in the post-implementation group (P=0.0071). There were no statistically significant differences in the secondary endpoints.

CONCLUSION: In this single-center, retrospective cohort the percentage compliance with guideline recommended duration of therapy was significantly higher after implementing computerized decision support for antimicrobial prescribing.

Presenters: Ly Huynh

TITLE: ENOXAPARIN DOSING IN HOSPITALIZED PATIENTS WITH COVID-19

AUTHORS: Ly Huynh, *PharmD*; Khushbu Patel, *PharmD, BCPS*

OBJECTIVE: To evaluate anti-Xa levels in hospitalized patients with COVID-19 who received level 2 or level 3 enoxaparin.

SELF ASSESSMENT QUESTION: What risk level had a higher percentage of supra-therapeutic anti-Xa level?

BACKGROUND: A high incidence of thrombosis has been reported in hospitalized patients with COVID-19. In response, many hospitals choose to do an intermediate or therapeutic anticoagulation. At our institution, the anticoagulation guideline for COVID-19 patients is stratified by three hypercoagulable stages based on D-Dimer and clinical status, level 1: prophylactic dosing with enoxaparin 0.5 mg/kg/day, level 2: intermediate dosing with enoxaparin 1 mg/kg/day, and level 3: therapeutic dosing with enoxaparin 1 mg/kg every 12 hours.

METHODOLOGY: This study was a single-center retrospective chart review of data collected from February to December 2020. Participants were adults who tested positive for COVID-19, received enoxaparin level 2 or level 3, and had anti-Xa levels collected at steady state. The primary outcome was the number of therapeutic anti-Xa for each anticoagulation level. Secondary outcomes were major bleeding, thrombosis, and readmission rate at 30 days due to bleeding or thrombosis.

RESULTS: There were 67% of therapeutic anti-Xa in level 2; 42% of therapeutic anti-Xa in level 3, non-renal dosing; and 44% of therapeutic anti-Xa in level 3, renal dosing. There were two major bleeding events in level 3 compared to one event in level 2. Three incidences of thrombosis were observed in both groups, and two patients were readmitted after thirty days due to pulmonary embolism in level 2.

CONCLUSIONS: A higher percentage of supra-therapeutic anti-Xa levels was observed in level 3 compared to level 2. Level 3 was observed to have a higher incidence of bleeding but a lower incidence of thrombosis at thirty days after hospital discharge.

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T Impact of outpatient transitions of care pharmacy program on interventions for discharged patients in a community hospital

Room A

Presenters: Tiffany Kahl

TITLE: Impact of outpatient transitions of care pharmacy program on interventions for discharged patients in a community hospital

AUTHORS: Tiffany Kahl, A. Wright, D. Benz, E. Hudson, H. McLeod, T. Wells, E. Ghassemi

OBJECTIVE: At the conclusion of the presentation, the participant will be able to describe the interventions made by TOC pharmacists involved within the discharge process.

SELF ASSESSMENT QUESTION: Which of the following reasons would it be beneficial for employing TOC pharmacist(s) to impact the discharge process? (select all that apply)

BACKGROUND: In August 2020, Cape Fear Valley Medical Center (CFVMC) implemented a transitions of care (TOC) pharmacist position in order to facilitate successful patient transitions from inpatient to outpatient care. The purpose of this project was to describe the clinical impact of the discharge process and the potential need for additional TOC pharmacists in this role.

METHODOLOGY: This was a single-centered retrospective chart review including patients discharged from CFVMC through the discharge lounge between 09/01/2020 and 12/1/2020. The primary objective was describing intervention types made by the TOC pharmacy staff on discharge prescriptions. Secondary objectives were to determine the number of patients requiring interventions, acceptance rate of interventions requiring provider approval, and time spent on interventions.

RESULTS: There were 6,185 patients discharged through the discharge lounge between 09/01/2020 and 12/1/2020. 563 discharge medication interventions were completed by the TOC pharmacy staff on 440 unique patients. The most frequent intervention types were preventing medication error (38.1%), addressing socioeconomic barriers (21.8%), and providing medication optimization (19.3%). It took pharmacy staff less than 10 minutes to complete 77.7% of interventions and more than 10 minutes to complete the remaining 22.3%. Eighty-six percent of interventions requiring provider approval were accepted.

CONCLUSIONS: The implementation of a TOC process has resulted in various types of interventions which help to facilitate patient transition from inpatient to outpatient care. Future studies could be designed to assess patient outcomes associated with the implementation of TOC pharmacist(s).

Presentation link: <https://youtu.be/0fLr1ZPNOps>

1 Kidney Transplant Outcomes Stratified by Race with a Calcineurin and Steroid Free Regimen

Room F

Presenters: Riley Scalzo

TITLE: Kidney Transplant Outcomes Stratified by Race with a Calcineurin and Steroid Free Regimen

AUTHORS: R. Scalzo, M. Harris, J. Morris & J. Byrns

OBJECTIVE: Describe the renal outcomes at 1 year, stratified by race, associated with belatacept and sirolimus after alemtuzumab induction.

SELF ASSESSMENT QUESTION: How do renal outcomes at 1 year differ between African American and non-African American kidney transplant recipients receiving belatacept and sirolimus after alemtuzumab induction?

BACKGROUND: This study aimed to describe the outcomes, stratified by race, associated with the maintenance regimen of belatacept and sirolimus after alemtuzumab induction in kidney transplant recipients.

METHODOLOGY: This was a retrospective, single-center study analyzing the outcomes of kidney transplant recipients who received belatacept-sirolimus immunosuppression after alemtuzumab induction. To be included, patients must have received a kidney-only transplant between 1/1/2016 and 8/31/2019, be > 18 years old, and EBV seropositive. The primary outcome was renal function (GFR by MDRD or CKD-EPI) at 1 year. Secondary outcomes included incidence of biopsy-proven rejection (BPAR), patient/graft survival, incidence of infection, and medication tolerability.

RESULTS: Fifteen African American (AA) and 26 non-AA patients were included. On average, patients were male, living donor recipients. At 1 year, median GFR was 60 mL/min in the AA cohort and 55.5 mL/min in the non-AA cohort ($p=0.82$). Patient/graft survival was 100%. BPAR occurred in 3 patients (20%) in the AA group, one due to non-adherence and one to a decrease in immunosuppression due to BK viremia. No BPAR was seen in the non-AA group. Mouth ulcers and leukopenia were the most common side effects (40% vs 46.2% and 20% vs 53.8%, respectively). Infection rates were similar between groups with CMV (6 patients in each) and BK viremia (5 vs 6 patients, respectively).

CONCLUSIONS: No significant differences between the AA and non-AA cohort were found in GFR at 1 year. The medication regimen was associated with excellent patient/graft survival and overall tolerability was comparable to previous studies. In conclusion, race did not impact renal outcomes in patients who received this belatacept-based regimen.

Link to presentation: <https://youtu.be/6xTmtJl1AxA>

Presenters: Leia Kent

TITLE: EXPANDING PHARMACIST-LED FATTY LIVER SCREENING AND EDUCATION IN A VETERAN POPULATION

AUTHORS: Leia Kent, Jessica Holleman, Lindsey Cross

OBJECTIVE: Recruit patients for pharmacist-led non-invasive transient elastography evaluation

SELF ASSESSMENT QUESTION: What can pharmacists recommend to a patient identified with fatty liver disease?

BACKGROUND: The purpose of this quality improvement project is to expand pharmacy services by recruiting, screening, and educating patients regarding non-alcoholic fatty liver disease (NAFLD) and its complications. NAFLD is the second-most common cause of liver transplant and third-most common cause of hepatocellular carcinoma. Among patients with NAFLD, cardiovascular disease is the most common cause of death. Managing cardiovascular risk factors such as diabetes, hypertension, and dyslipidemia is recommended for patients with NAFLD.

METHODOLOGY: Eligible patients are those with a recent new appointment with a primary care clinical pharmacy specialist (CPS) for type 2 diabetes, hypertension, or dyslipidemia. Patients were excluded if pregnant, have an implantable medical device, unable to fast for 3 hours prior to evaluation, or unable to maintain appropriate body positioning. A standardized note template will be entered into the electronic medical record to document non-invasive transient elastography results, education provided to the patient, and recommendations for the patient's primary care CPS.

RESULTS: Twenty-one patients were identified for non-invasive transient elastography evaluation. Patients were identified from the clinic FAY PACT CPS 11. Of these 21 patients, 20 patients accepted non-invasive transient elastography evaluations and 1 patient declined. 13 evaluations have been completed. Of the 13 evaluations, 77% of patients had a steatosis score of S3, indicating fatty liver disease with more than 66% of hepatocytes filled with fat. Of the 13 evaluations completed, 54% had a fibrosis score of F0, 8% had a fibrosis score of F1, 15% had a fibrosis score of F2, and 23% had a fibrosis score of F3. Pharmacist interventions included initiation of Chantix for smoking cessation and an increase or change in current statin therapy to reach high intensity

CONCLUSIONS: This project has expanded pharmacy services by recruiting, screening, and educating patients in the primary care clinic.

<https://youtu.be/qCztnrgOs0k>

Presenters: Rebecca Panter

TITLE: Impact of a COVID-19 pandemic-driven telehealth program conducted by a rural, primary care clinic on glucose control in adult patients with diabetes

AUTHORS: Rebecca Panter, Jason Moss, Kim Kelly, Ruthanne Baird

OBJECTIVE: Describe the impact telehealth encounters had on HbA1c control at rural Harnett Health clinics.

SELF ASSESSMENT QUESTION: Which recommendations can be made during telehealth encounters?

BACKGROUND: On March 14, 2020, the North Carolina governor implemented Executive Order 117 to help limit the spread of SARS-CoV-2 (COVID-19). Harnett Health's small, rural teaching clinics transitioned from traditional visits to telehealth encounters to help decrease the spread of COVID-19. Patients familiar with physical visits had to manage these new safety restrictions in their lives at work or home – and now changes in their health care visits. When taking the sudden nature of telehealth implementation into consideration, it is imperative that we understand the impact on patients with diabetes so that we are better able to serve this population.

METHODOLOGY: Patients were included if they were ≥ 18 years of age and diagnosed with type 1 or type 2 diabetes per ICD codes E10.x and E11.x. Patients had to have at least one telehealth encounter between March 15, 2020 and June 30, 2020 and an HbA1c measurement 3 to 6 months before and after the telehealth encounter. Patients were excluded if they were a resident of a skilled nursing or long-term care facility at the time of enrollment or if their HbA1c was at or below goal before the first telehealth encounter. The primary endpoint was the average change in HbA1c in patients between September 14, 2019 and March 14, 2020 and April 15, 2020 and December 30, 2020. Secondary endpoints include the number of recommendations and type of recommendations made during the telehealth encounters.

RESULTS: For the primary endpoint, the mean difference between the final and initial values was -0.4 (95%CI: -0.1 to -0.7). When reviewing types of recommendations made during the encounters, 73.6% of patients did not receive life style recommendations and 86.7% did not receive any medication recommendations.

CONCLUSIONS: Results are suggestive of positive benefits in the management of diabetes via telehealth encounters. The number of patients that did not receive any recommendations suggests that there is room to improve the process of telehealth encounters.

C Observation of transition to oral loop diuretics before discharge and risk of readmission in heart failure with preserved ejection fraction (HFpEF) Room D

Presenters: Sarah Medeiros

OBJECTIVE: Evaluate the effect of transitioning intravenous to oral loop diuretics in patients with acute decompensated HFpEF.

SELF ASSESSMENT QUESTION: Which medication has proven mortality benefit in patients with HFpEF?

PURPOSE: The purpose of this study is to evaluate the effect of transitioning intravenous to oral loop diuretics at least 24 hours before discharge on readmission rates in patients hospitalized for acute decompensated HFpEF.

METHODS: Retrospective cohort analysis comparing adult patients hospitalized for acute decompensation of HFpEF who received intravenous loop diuretics and were then transitioned to an oral loop diuretic within 24 hours of discharge versus greater than 24 hours before discharge. The primary endpoint is 30-day all-cause hospital readmission rates. Secondary endpoints include heart failure on heart failure readmissions, mortality, and length of hospital stay. Time observed on an oral loop diuretic prior to discharge will be defined as the date and time of the first dose of oral loop diuretic subtracted from the date and time of discharge in the electronic medical record without further administration of an IV loop diuretic. Patients will be included in our analyses if they meet the following criteria: admission to University of Tennessee Medical Center (UTMC) for acute decompensation of HFpEF, age of 18 years or older, received an intravenous loop diuretic during hospitalization and received a prescription for an oral loop diuretic at discharge. Patients will be excluded if they meet any of the following criteria: documentation of heart failure with reduced ejection fraction, duration of hospitalization less than 48 hours, cirrhosis, or end-stage renal disease requiring dialysis.

RESULTS/DISCUSSION: The two cohorts had similar baseline characteristics. The average age was 72 in the < 24 hour group and 74 in the >24 hour group and majority were white male with an average LVEF of 58% and BMI of 33.4. Most patients were admitted to the acute care floor as opposed to an intensive care unit. More patients in the IV loop >24 hour group received a cardiology consult which may be indicative of a sicker population at baseline. The primary outcome of all cause 30 day readmission was not statistically significant 25.3% in <24 hour group and 30% in >24 hour group with a P value of 0.55. However, secondary outcomes of 60 and 90 day heart failure readmission and all-cause readmission tended to clinically favor the IV diuretic <24 hours despite not being statistically significant.

<https://youtu.be/3Z7R8xa9uc0>

R Effect of Tamsulosin on Rates of Indwelling Urinary Catheter Reinsertion in Trauma Patients Room B

Presenters: Chris Thai

TITLE: Effect of Tamsulosin on Rates of Indwelling Urinary Catheter Reinsertion in Trauma Patients

AUTHORS: Chris Thai, Tyson Kilpatrick, Doug Wylie

OBJECTIVE: Describe the impact of tamsulosin administration on rates of recatheterization in trauma patients.

SELF ASSESSMENT QUESTION: Which of the following is true of the impact noted from tamsulosin administration in the TBICU?

BACKGROUND: Patients with an indwelling urinary catheter (IUC) are at increased risk for infectious and non-infectious complications with each IUC placement. While early removal is desired, development of acute urinary retention can lead to recatheterization and its attendant risks. It has been hypothesized that usage of tamsulosin, a selective alpha-1-A adrenergic antagonist commonly used to treat urinary retention in men with benign prostatic hyperplasia, may decrease the need for recatheterization in patients who have recently had an IUC removed.

METHODOLOGY: This retrospective cohort study examined data from patients over 18 years of age, admitted to a trauma and burn intensive care unit (TBICU) from August 1, 2019 through July 31, 2020, with orders placed for an IUC. Those receiving tamsulosin any time within seven days prior to IUC insertion and 48 hours after IUC removal were compared with those without administration of tamsulosin. The primary outcome was unadjusted odds of recatheterization. The secondary outcome was propensity score-matched odds of recatheterization.

RESULTS: 396 patients with an IUC were included (mean age 49.3±19.5 years; 30.6% female). There were 36 patients who received tamsulosin within the exposure window, and 360 patients without exposure, including 83 who received tamsulosin outside the exposure window. 30.6% in the exposure group were re-catheterized versus 29.7% in the non-exposure group, unadjusted OR 1.04 (95% CI = 0.49-2.19). Matching with propensity scores yielded similar results, OR 0.76 (95% CI = 0.28-2.12).

CONCLUSIONS: Tamsulosin administration was not associated with decreased rates of recatheterization among patients admitted to the TBICU. These findings do not support the use of tamsulosin to reduce rates of recatheterization in this patient population.

Video link: https://youtu.be/_O0yPs5HyUw

Presenters: Jillian Davis

Title: Glycemic control during insulin infusion guided by non-electronic DKA-focused protocol versus equation-based management of non-DKA hyperglycemia in critically ill patients

Authors: Jillian Davis, Joshua Chestnutt

Objective: Compare incidence of hypoglycemia and glycemic variability with non-electronic, DKA-focused versus equation-based titration of insulin infusions in critically ill patients with non-DKA hyperglycemia.

Self-Assessment Question: What are potential benefits of equation-based over non-electronic titration of insulin infusions in critically ill patients with non-DKA hyperglycemia?

Background: Electronic glycemic management systems (eGMS) utilize equation-based titration and insulin sensitivity factors to guide individualized management of continuous insulin infusions. When compared to non-electronic titration of insulin infusions, use of eGMS has been associated with lower incidence of hypoglycemia and less glycemic variability. The primary objective of this analysis was to compare incidence of hypoglycemia and glycemic variability with use of a non-electronic diabetic ketoacidosis (DKA)-focused protocol versus equation-based management of insulin infusions before and after implementation of an equation-based protocol in critically ill patients with non-DKA hyperglycemia.

Methodology: Retrospectively, an electronic health record report identified adults ≥ 18 years of age admitted to an intensive care unit (ICU) in whom a continuous insulin infusion was initiated for management of hyperglycemia before implementation of an equation-based protocol, from July 2019 through December 2020, and after protocol implementation on March 1, 2021. The titration equation was embedded within an order set and derived from an eGMS utilized at all other system facilities, but not present at the study facility. Excluded patients were pregnant women and those for whom an insulin infusion was initiated for management of DKA. Primary endpoints were incidence of hypoglycemia and degree of glycemic variability among included patients for whom non-electronic, DKA-focused titration was utilized versus equation-based insulin infusion titration before and after protocol implementation. Secondary endpoints were mean duration of insulin infusion, mean ICU length of stay, and in-hospital mortality between the study groups before and after protocol implementation.

Results: In progress

Conclusions: In progress

Presentation Link: <https://youtu.be/gf1ULVUiqQY>

I Evaluation of the diagnostic utility of metagenomic next-generation sequencing testing for pathogen identification in infected hosts

Presenters: Austin Williams

TITLE: Evaluation of the diagnostic utility of metagenomic next-generation sequencing testing for pathogen identification in infected hosts

AUTHORS: Austin Williams; Anna Estes; Zach Webster; Alexander Milgrom; Chao Cai; Majdi Al-Hasan; P. Brandon Bookstaver

OBJECTIVE: List factors associated with high and/or low diagnostic utility of mNGS testing.

SELF ASSESSMENT QUESTION: What is the most common way that mNGS testing has been used to change antimicrobial therapy?

BACKGROUND: Metagenomic next-generation (mNGS) testing is a blood test to detect cell-free DNA to identify pathogens, though data on its utility are lacking. The purpose of this study is to evaluate the clinical utility of mNGS testing and to identify factors associated with high diagnostic utility.

METHODOLOGY: All mNGS tests ordered from June 2018 through May 2020 were screened. Tests ordered for clinical diagnostic purposes in hospitalized patients at Prisma Health Richland or Prisma Health Children's hospital were included. Repeat tests were evaluated on an individual basis. Criteria to determine diagnostic utility were created a priori. Two researchers independently reviewed tests and categorized each to either high or low diagnostic utility. A stepwise regression analysis was used to identify factors associated with high diagnostic utility.

RESULTS: Ninety-six individual tests among 82 patients were included. At least one potential pathogen was identified in 58% of tests. Among 112 individual pathogens identified, there were 74 bacteria, 25 viruses, 12 fungi and 1 protist. Forty-six tests were determined to be high utility and 36 tests were determined to be low utility. Antimicrobials were changed in 67.4% of high utility tests and 11.8% of low utility tests ($p < 0.0001$). Of the antimicrobial changes, de-escalation occurred as a result in 21/46 high utility tests and 1/34 low utility tests. In the multivariate analysis, a positive test (OR = 10.9; 95% CI, 3.2-44.4) and consult to company medical director (OR = 3.6; 95% CI, 1.1-13.7) remained independently associated with high utility.

CONCLUSIONS: Positive mNGS tests are closely associated with high utility and are most commonly used to de-escalate antimicrobials while prior antimicrobial use and repeat testing did not appear to influence diagnostic utility. We conclude that all tests be accompanied by a consult with the company medical director.

https://youtu.be/snP_F70wbh8

I Interleukin-6 inhibitors for the treatment of cytokine release syndrome secondary to coronavirus disease 2019 infection at a community hospital

Room I

Presenters: Kyle Manning

TITLE: Interleukin-6 inhibitors for the treatment of cytokine release syndrome secondary to coronavirus disease 2019 infection at a community hospital

AUTHORS: KB Manning, CW Whitman, JM Tubbs, DT Childress, L Hohmann, J Leon, CE Harrison

OBJECTIVE: Describe the clinical response associated with interleukin-6 inhibitors in hospitalized patients with severe coronavirus disease 2019 (COVID-19) pneumonitis at a community hospital.

SELF ASSESSMENT QUESTION: What is tocilizumab's mechanism of action?

BACKGROUND: The purpose of this study was to evaluate clinical response in hospitalized patients with severe coronavirus disease 2019 (COVID-19) receiving interleukin-6 (IL-6) inhibitors plus standard of care against patients treated with standard of care only.

METHODOLOGY: A retrospective, observational cohort study was conducted on patients hospitalized at a community hospital with COVID-19 infections from March 2020 to May 2020. The primary outcome was clinical response, defined as an improvement of at least 2 categories relative to baseline on a 7-category ordinal scale up to hospital discharge or 30 days. Adjusted analyses controlling for covariates (length of stay, level of acuity, demographics, and Charlson Comorbidity Index) were conducted.

RESULTS: A total of 133 patients met inclusion criteria. 30 patients received an IL-6 inhibitor plus SOC and 103 received SOC alone. There was no statistical difference in the primary outcome between groups as 76.7% in the SOC alone group and 70.0% in the IL-6 inhibitor group met the defined endpoints for clinical response ($p=0.477$). In the adjusted analysis, patients treated with IL-6 inhibitors were approximately four times more likely to meet the primary endpoint [Exp(B) = 4.325; $p = 0.038$, 95% CI (1.09, 17.18)].

CONCLUSIONS: Compared to standard of care only, IL-6 inhibitors were not associated with a significant clinical improvement. However, after adjusting for covariates, this study suggests that the initiation of IL-6 inhibitors in patients with early COVID-19 pneumonitis before progression to the ICU may be associated with improved clinical status. The appropriate clinical status and time to initiate IL-6 inhibitors remains unclear, and randomized, controlled trials are needed to collect more evidence.

Links

Slides: https://drive.google.com/drive/folders/12TtIEGSFnVy_RanJmCn4CK8qtxdYAcWm?usp=sharing

AV recording: <https://drive.google.com/file/d/1k2Pg9IBgNvM4nvwV8Z1ITxOBoAXWUaTr/view?usp=sharing>

L Electrolyte protocol modifications and implementation in a large community hospital

Room E

Presenter: Lauren Butler

TITLE: Electrolyte protocol modifications and implementation in a large community hospital

AUTHORS: Lauren Butler, Cara Bujanowski, Jerry Robinson

OBJECTIVE: Identify modifications made in an attempt to improve the effectiveness and safety of an electrolyte protocol used at a large community hospital.

SELF ASSESSMENT QUESTION: Which of the following patients are receiving appropriate phosphorus replacement per this institution's electrolyte protocol?

BACKGROUND: Since moving to a new electronic medical record system, medication errors and feedback from clinical staff concerning issues with the current electrolyte protocol have been identified. The purpose of this study was to evaluate the effectiveness and safety of the current electrolyte protocol for phosphorus replacement, implement modifications, and then reevaluate post-implementation effectiveness and safety.

METHODOLOGY: A retrospective chart review included 150 adult inpatients prescribed IV sodium phosphate and 150 adult inpatients prescribed oral phosphate powder for phosphorus replacement through the current electrolyte protocol from November 2020 to December 2020. Data collection included age, weight, serum creatinine, continuous renal replacement therapy status, hemodialysis status, phosphorus level before and after electrolyte replacement, dose, result (sub-therapeutic, therapeutic, or supra-therapeutic), and appropriateness. Additionally, issues identified with the current electrolyte protocol and recommendations for improvement were presented to the institution's P&T Committee. Post-implementation effectiveness and safety will be reevaluated for phosphorus replacement, including evaluating medication errors.

RESULTS: Prior to implementation, 40.67% of patients receiving IV sodium phosphate were therapeutic after the first bolus compared to 6% in the oral phosphate group. However, the average baseline phosphorus level in the IV sodium phosphate group was 2.06 mg/dL compared to 2.2 mg/dL in the oral phosphate group. Additionally, there was approximately 49 (16.3%) errors among the 300 patients evaluated. Results of post-implementation data collection are pending, due to modifications awaiting implementation in the electronic medical record system.

CONCLUSIONS: In progress

P Evaluating the impact of pharmacist-led interventions on improving prescribing rates of alcohol use disorder pharmacotherapy

Room G

Presenters: Kalyn Pounders

TITLE: Evaluating the impact of pharmacist-led interventions on improving prescribing rates of alcohol use disorder pharmacotherapy

AUTHORS: Kalyn D. Pounders, Rashida A. Fambro, Stephanie A. Oh

OBJECTIVE: To describe how AUDIT-C scores can be used to determine when pharmacotherapy is appropriate for alcohol use disorder treatment

SELF ASSESSMENT QUESTION: What AUDIT-C scores indicate that the patient may benefit from pharmacotherapy assisted treatment?

BACKGROUND: Previous studies have shown that alcohol use disorder (AUD) pharmacotherapy is severely underutilized despite high prevalence of diagnosis. The Atlanta VA Health Care System currently has a real-time dashboard that identifies patients with an active diagnosis of AUD who may be eligible for pharmacotherapy. This project aimed to assess the prescribing rates of AUD pharmacotherapy before and after pharmacist-led interventions in order to identify quality improvement opportunities.

METHODOLOGY: For this retrospective chart review, a recommendation template was created to maintain standardization. The real-time dashboard identified patients with an active diagnosis of AUD not in remission. Identified patients meeting inclusion criteria were reviewed by a pharmacist. After review, eligible patients were recommended either acamprosate, naltrexone oral tablets, naltrexone intramuscular injection, disulfiram, or topiramate. Upon review, the impact of pharmacist-led interventions on prescribing rates was assessed.

RESULTS: A total of 65 patients were reviewed and provided recommendations for AUD pharmacotherapy. Oral naltrexone was recommended in 56 out of 65 (86.15%) patients. Only 3 patients (4.62%) had active prescriptions for AUD pharmacotherapy at the time of post intervention review. 26 out of 62 (41.94%) patients without an active AUD pharmacotherapy prescription during post intervention review had no documented offer of AUD pharmacotherapy within the electronic medical record. 6 out of those 62 patients (9.68%) declined medication assisted treatment despite being offered.

CONCLUSIONS: This method of pharmacist-led interventions did not significantly improve prescribing rates of AUD pharmacotherapy indicating there is room for quality improvement. The future direction of this initiative should focus on improving communication with prescribers in addition to creating educational opportunities for patients and prescribers within the Atlanta VA Health Care System.

T Pharmacist versus Non-Pharmacist Culture Callback Response in the Emergency Department

Room A

Presenters: Tyler Leroy

TITLE: Pharmacist versus Non-Pharmacist Culture Callback Response in the Emergency Department

AUTHORS: Tyler Leroy, Jessica Michal, Stephanie Milliken, Steven Robinette

OBJECTIVE: Demonstrate differences in appropriateness between pharmacist and non-pharmacist driven culture callback response in the emergency department.

SELF ASSESSMENT QUESTION: What is the most frequently made error when changing therapy for culture callback patients?

BACKGROUND: Bacterial infections result in roughly 100 million emergency department visits per year. Due to the high incidence of presentation, it is imperative that recommendations post-discharge are therapeutically optimal and patient appropriate. This research seeks to assess actions taken and quantify recommendation appropriateness of pharmacists and non-pharmacists in emergency department culture callback responses.

METHODOLOGY: A retrospective cohort was conducted on patients at least 8 years of age with positive urine or blood cultures who presented to any McLeod Health emergency department from November 1st, 2019, to November 1st, 2020. A sample size of 109 patients per study arm (pharmacists, non-pharmacist) was determined using alpha of 0.05, beta set at 0.1, and an extrapolated correctness rate of 80% for pharmacists and 60% for non-pharmacists. Culture callback response appropriateness was assessed utilizing a guideline-directed algorithm developed for the purpose of this project. A kappa coefficient was generated via non-pharmacist review of 10% of the total patient population to establish agreement.

RESULTS: In-progress

CONCLUSIONS: In-progress

A DEVELOPMENT AND IMPLEMENTATION OF A PERIOPERATIVE AND INTRAOPERATIVE GLYCEMIC MANAGEMENT PROTOCOL IN A COMMUNITY HOSPITAL

Room G

Presenters: Kevin Hsieh

TITLE: DEVELOPMENT AND IMPLEMENTATION OF A PERIOPERATIVE AND INTRAOPERATIVE GLYCEMIC MANAGEMENT PROTOCOL IN A COMMUNITY HOSPITAL

AUTHORS: Kevin Hsieh, Sarah Murphy, Megan Freeman, Amy Noonkester, Mary-Beth Marandola-Kenvin

OBJECTIVE: Describe intraoperative and perioperative glycemic management in a community hospital setting.

SELF ASSESSMENT QUESTION: What is the prevalence of perioperative hyper- and hypoglycemic events in the diabetic patient population undergoing surgical procedures?

BACKGROUND: Poor glycemic management in perioperative and intraoperative surgical phases has been associated with adverse clinical outcomes such as increased rates of infection, length of hospitalization, and mortality. Current guidelines recommend perioperative and intraoperative glycemic targets of 140 – 180 mg/dL. The goal of this review is to determine the prevalence of perioperative hyperglycemia and develop a standardized process for glycemic management in the perioperative setting.

METHODOLOGY: A retrospective chart review is being conducted between July 2019 – July 2021 for diabetic adult patients undergoing surgical procedures. Patients were identified by diabetes diagnosis or insulin administration in the perioperative setting. Data collected includes frequency of blood glucose measurements, percentage of patients within glycemic targets, treatment of hypo- and hyperglycemic events, and length of surgical procedure.

RESULTS: Data was collected on 130 patients. 90 patients were identified by diabetes diagnosis and 40 patients identified by insulin administration perioperatively.

Of the patients identified by diagnosis, point-of-care testing (POCT) was performed on 74.4% preoperatively and 25.6% post-operatively. 16.1% of preoperative POCT were above goal and 60.8% were above goal post-operatively. 20% of those pre-operative hyperglycemic values were treated whereas 50% of patients were treated postoperatively. Following treatment, no patient reached the glycemic target. No patient experienced hypoglycemia.

Of patients identified by insulin administration, 90% had preoperative BG >180 mg/dL (median BG 281 mg/dL). 87.5% had postoperative glucose >180 mg/dL (median BG 235 mg/dL). 7.5% of these patients reached the glycemic target following insulin administration.

CONCLUSIONS: Preliminary analysis reveal opportunities for improving perioperative glycemic management. Preoperative hyperglycemia was low, but POCT testing was inconsistent. Opportunities for improvement include increasing frequency of POCT monitoring and insulin administration for hyperglycemic events.

B Evaluation of Physician-pharmacist Education on Attitudes, Beliefs, and Knowledge Surrounding Outpatient Antimicrobial Stewardship in Family Medicine Resident Physicians

Room K

Presenters: Hannah Denham

TITLE: Evaluation of Physician-pharmacist Education on Attitudes, Beliefs, and Knowledge Surrounding Outpatient Antimicrobial Stewardship in Family Medicine Resident Physicians

AUTHORS: Hannah Denham, PharmD Stephanie Mitchell, DO Shaunta' Chamberlin, PharmD, BCPS, FCCP William Dabbs, MD Sarah Eudaley, PharmD, BCPS

OBJECTIVE: Describe attitudes, beliefs, and knowledge surrounding outpatient antimicrobial prescribing in Family Medicine residents.

SELF ASSESSMENT QUESTION: What is a way that pharmacists can assist in positively impacting outpatient antimicrobial prescribing?

BACKGROUND: Determine attitudes, beliefs, and knowledge surrounding outpatient antimicrobial stewardship in Family Medicine residents and before and after a targeted physician-pharmacist educational intervention

METHODOLOGY: This is a three-phase, multi-center, cross-sectional study of Family Medicine residents within approximately 12 family medicine residencies in the United States. Phase 1 includes administration of an anonymous online survey consisting of 3 specific sections regarding outpatient antimicrobial prescribing: attitudes, beliefs, and knowledge. Phase II will be development of a targeted physician-pharmacist-led educational intervention based on survey data. The intervention will focus on providing education and information in order to change beliefs and attitudes and expand knowledge surrounding outpatient antimicrobial stewardship, resistance, and appropriate use. Phase III will be administration of the same survey to determine the effects of the educational activity. The primary outcome will be change in resident attitudes, beliefs, and knowledge pre/post the educational intervention. The secondary outcomes will be change in attitudes, beliefs, and knowledge pre/post using the following variables: intern (PGY1) vs residents (PGY2, PGY3), student ID rotation vs none, BS in microbiology vs not, male vs female, MD vs DO, community vs academic medical center (setting of residency program), and TN vs other states. Wilcoxon signed rank will be used for data analysis. Logistic regression will be used to determine factors that influence attitudes, beliefs, and knowledge.

RESULTS: In progress

CONCLUSIONS: In progress

C Retrospective evaluation of the effect of having pharmacist-managed warfarin anticoagulation for LVAD patients

Room E

Presenters: Meredith Sutton

TITLE: Retrospective evaluation of the effect of having pharmacist-managed warfarin anticoagulation for LVAD patients

AUTHORS: Meredith Sutton, Charlie Stoner, Elizabeth Benedetti, Dominique Gignac, Richa Agarwal, Beiyu Liu, Emily Poehlein

OBJECTIVE: To evaluate potential differences in effectiveness of warfarin monitoring by pharmacists compared to monitoring by other providers in patients with left ventricular assist devices

SELF ASSESSMENT QUESTION: True or False: Patients with left ventricular devices may have their INR goals adjusted based on their bleeding history.

True

False

BACKGROUND: Left ventricular assist devices (LVADs) offer an alternative to heart transplantation or offer the ability to survive until a heart becomes available. LVADs come with risks of both bleeding and thrombosis complications and warfarin is the mainstay of anticoagulation therapy. In 2018, our institution developed a pharmacist-managed LVAD anticoagulation service. The purpose of this retrospective, single center, cohort study is to determine if there is a difference in time in therapeutic international normalized ratio (INR) range in LVAD patients on warfarin when managed by pharmacists compared to management by other practitioners.

METHODOLOGY: This single-center, retrospective, pre-post study included adult patients with new LVAD implants from 07/2014-07/2016 whose anticoagulation was managed by the LVAD department during 2017 and patients with new LVAD implants from 07/2016-07/2018 whose anticoagulation was managed by pharmacists during 2019.

Included patients were at least 18 years of age, and had a HeartMate II, HeartWare HVAD, or HeartMate 3 device. The primary endpoint was the time in therapeutic INR range during the follow-up year. The secondary endpoints included the proportion of patients with bleeding and clotting events that required an ED visit or hospital admission.

RESULTS: A total of 164 patients were included in the analysis. The time in therapeutic INR range for patients in the pharmacist-managed group was 69.4% compared to 63.1% in the pharmacist group ($p=0.016$). The proportion of patients with an ED visit or hospital admission for bleeding was 26.3% and 28.4% in the pharmacist and provider group, respectively. The proportion of patients with an ED visit or hospitalization for a clotting event was 6.6% and 5.7% for the pharmacist-managed group and provider-managed group, respectively.

CONCLUSIONS: This study suggests that patients with left ventricular assist devices that have their anticoagulation managed by pharmacists spend more time in therapeutic INR range compared to management by other providers.

R Comparing the Incidence of Hematoma Expansion after Desmopressin Administration in Patients with Spontaneous Intracerebral Hemorrhage on Antiplatelet Medications

Room C

Presenters: Taylor Gregory

TITLE: Comparing the Incidence of Hematoma Expansion after Desmopressin Administration in Patients with Spontaneous Intracerebral Hemorrhage on Antiplatelet Medications

AUTHORS: Taylor Gregory, Erin Creech, Elizabeth Wright

OBJECTIVE: Describe desmopressin's effect on hematoma expansion in patients experiencing sICH while taking antiplatelet medications.

SELF ASSESSMENT QUESTION: Is desmopressin effective in preventing hematoma expansion?

BACKGROUND: Spontaneous intracerebral hemorrhage (sICH) is associated with high morbidity and mortality. Expansion of the initial hematoma is a marker of poor prognosis but may be preventable. The use of antithrombotic medications can adversely affect outcomes, specifically hematoma expansion. This study aimed to determine the efficacy of desmopressin (DDAVP) in reducing the incidence of hematoma expansion in patients taking antiplatelet medications after a sICH.

METHODOLOGY: This was a single center, retrospective cohort study that included adult patients admitted to the Neuroscience, Medical, or Surgical Trauma Intensive Care Units for sICH with documented DDAVP administration between January 2016 and January 2020. Patients were stratified by those on antiplatelet therapy at baseline versus those who were not. Patient demographics, laboratory values, DDAVP dosage, timing of interventions and imaging were all collected. The primary endpoint was to compare the incidence of hematoma expansion. Secondary endpoints included ICU and hospital length of stay, in-hospital mortality, and functional outcome. This study was approved by the Institutional Review Board.

RESULTS: This study screened 405 patients with at least one order of DDAVP for eligibility. Ultimately, 23 individuals with no prior antiplatelet therapy and 16 with prior antiplatelet therapy were included. The baseline characteristics between these groups were similar. Exceptions included the antiplatelet group being significantly older and no antiplatelet therapy group having a higher incidence of alcohol use disorder and ICH score. The timing of DDAVP administration, neurosurgical intervention, and of imaging confirming expansion were all similar between the groups. There were no statistically significant differences found for the primary and secondary outcomes.

CONCLUSIONS: Desmopressin is not effective in preventing hematoma expansion in patients with sICH on prior antiplatelet therapy. Further study regarding the timing of desmopressin administration is warranted.

Link to presentation: <https://youtu.be/JQQdsPPifs4>

R Comparison of a pharmacist- vs nurse-directed emergency department culture review service on positive bacterial culture and rapid diagnostic test interventions.

Room B

Presenters: Lauren Cooper

TITLE: Comparison of a pharmacist- vs nurse-directed emergency department culture review service on positive bacterial culture and rapid diagnostic test interventions.

AUTHORS: Lauren Cooper, Veena Patel, Ruthanne Baird, Kim Kelly and Jason Moss

OBJECTIVE: Describe an effective pharmacist-led ED culture review service model to help ensure more appropriate antibiotic stewardship in the ED setting.

SELF ASSESSMENT QUESTION: According to this study, how does a pharmacist-directed culture review service help ensure more appropriate antibiotic selection compared to another healthcare professional-directed culture review service in the ED setting? Select all that apply.

BACKGROUND: Determine if there is a difference between a pharmacist-led emergency department (ED) culture review service compared to the previous nurse-led service with respect to the percentage of documented interventions for adult ED patients with positive cultures (urine, blood, wound) and/or rapid diagnostic test (RDTs) results requiring action.

METHODOLOGY: ED patients ≥ 18 years of age who received positive cultures (urine, wound, blood or stool) or RDT results and were evaluated and discharged from the ED from 9/24/2018 to 1/24/2019 (nurse-directed service) or from 9/24/2019 to 1/24/2020 (pharmacist-directed service) were included. Patients were included if their positive culture (urine, wound or blood) or RDT (*Chlamydia trachomatis* and *Neisseria gonorrhoea*) is actionable and required intervention. Patients were excluded if the antibiotic administered during the ED visit or a prescription provided upon discharge is regarded as the standard-of-care within corresponding treatment guidelines and the organism is sensitive to the antibiotic prescribed according to susceptibility data for positive culture. Patients were also excluded if the culture was contaminated or if bacteriuria with a colony count $<100,000$.

RESULTS: 113 cultures and/or rapid diagnostic tests (RDTs) were included in the nurse-led program and 113 cultures and/or RDTs were included in the pharmacist-led program. Urine cultures were the most prevalent culture type for both the nurse-led and pharmacist-led group with 74.6% and 62.8% respectively. The percentage of documented interventions on actionable cultures and/or RDTs was 76.9% for the nurse-led vs. 68.1% for the pharmacist-led program ($p = 0.136$). The percentage of documented interventions on actionable cultures and/or RDTs in accordance with clinical guidelines was 85.7% for the pharmacist group vs. 58.85% for the nurse-led group ($p = 0.02$).

CONCLUSIONS: While the percentage of documented interventions on actionable cultures and/or RDTs was not statistically significant, we observed a statistically significant difference in the percentage of documented interventions on actionable cultures and/or RDTs in accordance with clinical guidelines in favor of the pharmacist-led vs. nurse-led service. This finding may translate into a decrease in local antimicrobial resistance rates over time.

R Evaluating antipsychotic prescribing practices at an American Burn Association verified burn center Room D

Presenters: Annalise Labatut

TITLE: Evaluating antipsychotic prescribing practices at an American Burn Association verified burn center

AUTHORS: Annalise Labatut, PharmD, Kristen Robinson, PharmD, Rita Gayed, PharmD, Rohit Mittal, MD

OBJECTIVE: : Discuss AAP prescribing patterns in BICU patients.

SELF ASSESSMENT QUESTION: How can pharmacists evaluate appropriateness of APP continuation on transitions of care?

BACKGROUND: Characterize the prescribing patterns of atypical antipsychotics (AAPs) in patients admitted to the Burn Intensive Care Unit (BICU).

METHODOLOGY: This was a single-center, retrospective chart review of adults admitted to the BICU with a burn injury who received scheduled oral atypical antipsychotics. Prescribing patterns in the ICU and on all transitions of care were analyzed. Additionally, the appropriateness of AAP prescribing at discharge was evaluated. AAPs were considered to be appropriately prescribed at discharge if a patient was continuing a home medication, or if psychiatric consult services recommended continuing at discharge.

RESULTS: During the five year study period, 440 adults were admitted to the BICU with a burn injury, 18.2% of which were prescribed an AAP during their ICU course. Of those prescribed an AAP, 28.8% had a documented underlying psychiatric condition. Most patients were male (70%) with a median age of 41 years (29-55), a median total body surface area burn of 28.8% (16.3-44.5). The median ICU length of stay was 32 days (13-59). AAPs were primarily used to treat agitation/delirium (72.5% of patients). Quetiapine was the most commonly prescribed AAP. On transfer to stepdown, AAPs were continued in 78.4% of patients. Additionally, 67.7% were discharged on an AAP. Of these patients, continuation was considered appropriate in 54% of patients.

CONCLUSIONS: In addition to having an increased risk if ICU delirium, burn patients often suffer from pre-existing and new onset psychiatric disorders. Despite overall lower AAP prescribing in the burn ICU compared to other ICUs, over two thirds of patients initiated on AAPs in the BICU were prescribed AAPs at discharge. AAPs should be evaluated for appropriateness at each transition of care.

Presenters: Kayla Antosz

TITLE: Cost Effectiveness and Clinical Outcomes of Long Acting Lipoglycopeptides Used in Transitions of Care

AUTHORS: Kayla Antosz, Joseph Kohn, Julie Ann Justo, Majdi Al-Hasan, Alexander Milgrom, Benjamin Tabor, P. Brandon Bookstaver

OBJECTIVE: Evaluate the cost effectiveness and clinical outcomes of lipoglycopeptides in comparison to the standard of care.

SELF ASSESSMENT QUESTION: Lipoglycopeptides were associated with an increase in total health care related costs in comparison to standard of care. True or false?

BACKGROUND: Dalbavancin and oritavancin are long-acting lipoglycopeptides (LaLGPs) FDA-approved for one-time only dosing for skin and skin structure infections. The use of these agents in serious, deep-seated infections requiring protracted antibiotic courses is of increasing interest. The purpose of this study is to evaluate the clinical use of LaLGPs in patients requiring protracted antibiotic courses who are not ideal candidates for oral or outpatient parenteral antibiotic therapy.

METHODOLOGY: This is a retrospective, observational, matched cohort study at Prisma Health Midlands of adult patients who received a LaLGP or standard of care for deep-seated infections due to gram-positive bacteria. Patients who received a LaLGP were matched 1:1 to standard of care by age +/- 10 years, infection type, microorganism, and socioeconomic factor. Cost effectiveness is evaluated as total health care related costs between the two groups. Clinical success is determined as a composite endpoint of mortality, recurrence, or need for extended antibiotics. Secondary outcomes include hospital length of stay and total antimicrobial related cost of care.

RESULTS: Clinical failure was not statistically different between the LaLGP cohort and standard of care (22% vs. 30%, $p=0.491$). 6 patients left AMA in the standard of care cohort compared to 0 in the LaLGP ($p<0.022$) and the average hospital duration was 32.0 days and 22.9 days, respectively. The average cost savings per patient was \$30,500.51 in the LaLGP cohort and this was considered to be cost effective.

CONCLUSIONS: The receipt of LaLGPs may be a cost-effective treatment option for patients with deep-seated infections and factors limiting OPAT or oral therapy.

Link: <https://www.youtube.com/watch?v=6weejrZ9PC4>

Presenters: Alex Sierko

TITLE: Evaluation of the Relationship between Chronic Medication Use and COVID-19 Disease

AUTHORS: Alexandra Sierko, Courtney E. Gamston, Kimberly Braxton Lloyd, Jingjing Qian

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify how chronic medications known to impact potential COVID-19 targets might influence disease course and/or severity.

SELF ASSESSMENT QUESTION: Which medications or medication classes might influence COVID-19 disease course and/or severity?

BACKGROUND: COVID-19, caused by the SARS-CoV-2 virus, is a devastating infection that has impacted the entire world population. Although little is known regarding the viral pathogenesis, there are numerous theories related to viral impacts on the body's physiological responses. Recent research has identified potential targets and disease processes directly affected by common medications. These components include the renin-angiotensin aldosterone system (RAAS), vasodilation/ vasoconstriction, serotonin mediated responses, the coagulation cascade, histamine release, and the inflammatory response. The purpose of this project is to determine if chronic use of medications known to impact potential COVID-19 targets influences disease course and/or severity.

METHODOLOGY: A retrospective review of the National COVID Cohort Collaborative (N3C) database was conducted to examine relationships between chronic treatment with certain medications and disease course/severity. In this presentation, preliminary analysis of the impact on all-cause mortality for patients taking chronic histamine-2 receptor antagonist (H2RA) therapy with positive and negative results for COVID testing are reported. Records from patients taking omeprazole were compared as a control for the active treatment of gastroesophageal reflux disease (GERD). Correlation analyses are ongoing to identify relationships between medication use and disease outcomes including symptomology, care needed (e.g. intubation, intensive care unit admission), death, and severity classification.

RESULTS: Preliminary analysis of nearly 800,000 patient records demonstrated significant differences in demographic and comorbidity profiles in COVID positive verses negative patients and patients taking H2RA verses omeprazole therapy. A multivariate analysis will be conducted to determine the impact of H2RA therapy on COVID disease course and outcomes and the impact of demographics and comorbidities on those outcomes.

CONCLUSIONS: In progress

https://docs.google.com/presentation/d/1_gJHCeJutlpnJ6gQPR_ATSnBMvYGMHdbFFxtau26CA0/edit?usp=sharing

Presenters: Lydia Miller

TITLE: EVALUATION OF THE USE OF OUTPATIENT ANTIMICROBIAL THERAPY (OPAT) VERSUS ORAL ANTIBIOTIC THERAPY IN BONE AND JOINT INFECTIONS IN A VETERAN POPULATION

AUTHORS: Lydia G Miller, James A Carr, Todd McCarty

OBJECTIVE: Outline the use of outpatient antimicrobial therapy compared to oral antibiotic therapy for bone and joint infections in a veteran population.

SELF ASSESSMENT QUESTION: Can antimicrobial stewardship be improved by assessing the use of antibiotics for bone and joint infections?

BACKGROUND: Evaluate within a VA Health Care System the use of intravenous versus oral antibiotic use for the treatment of bone and joint infections.

METHODOLOGY: This research project consisted of a retrospective chart review conducted by reviewing electronic medical records and collecting data on a specific data collection form. Patient information was gathered for any patient receiving outpatient parenteral antimicrobial therapy or oral antibiotics for bone and joint infections. The patient chart was reviewed for inpatient infectious disease consults and to collect variables including age, sex, indication, duration of therapy, available culture data, and surgical interventions. For purposes of this study, patients with Staphylococcus aureus bacteremia, bacterial endocarditis, any concomitant infection which required a prolonged intravenous course of antibiotics, or septic shock or systemic features requiring intravenous antibiotics were excluded.

RESULTS: Research is currently ongoing.

CONCLUSIONS: Research is currently ongoing

Presenters: Pooja Ojha

TITLE: Improving Time to Administration of Specified Time-Critical Medications

AUTHORS: Pooja Ojha and Ryan Crossman

OBJECTIVE: The objective of this presentation is to evaluate the approaches taken at a community hospital to improve time-to-administration of time critical medications.

SELF ASSESSMENT QUESTION: Did education for the pharmacy and nursing departments plus optimization of the automated dispensing cabinet inventory improve time-to-administration of time-critical medications?

BACKGROUND: Timely medication administration is important within the acute care setting because delays in medication administration may have negative impacts on patient outcomes. Many scheduled medications allow for flexibility during administration (i.e. being given one hour sooner or later than the scheduled time). However, the Institute of Safe Medication Practices (ISMP) and the National Integrated Accreditation for Healthcare Organizations (NIAHO®) define time-critical medications as those that must be given within a one-hour time frame of the scheduled dose (i.e. 30 minutes before or after the scheduled dose). A delay of greater than 30 minutes in the administration of a “time-critical” medication has the potential to cause harm or have a negative impact on the patient’s clinical course or outcome. The aim of this research proposal is to improve time to administration of time-critical medications at Piedmont Columbus Regional.

METHODOLOGY: This is a quality improvement study that will provide universal education to the nursing and pharmacy departments about the appropriate administration of time-critical medications. Further strategies will include:

- Adjusting medications in automated dispensing cabinets to include most time-critical medications in order to avoid delays that may be caused by medication delivery from pharmacy
- Creating one-page reminders to post near automated dispensing cabinets regarding the identification of time-critical medications
- Utilizing badge reminders in order to identify a medication as time-critical

Data collected will not be patient identifiable. Data collected will represent the number of times medication administration was done within the one-hour time frame of the scheduled dose.

RESULTS: In progress

CONCLUSIONS: In progress

○ **Physician Prescribing Patterns of Anti-Infective Prophylaxis and Incidence of Opportunistic Infections in Lymphoma Patients on B-cell Targeted Therapies**

Presenters: David Doan

TITLE: Physician Prescribing Patterns of Anti-Infective Prophylaxis and Incidence of Opportunistic Infections in Lymphoma Patients on B-cell Targeted Therapies

AUTHORS: David Doan, Kelly Valla, Jeffrey Switchenko, Jonathon Cohen

OBJECTIVE: Identify effects of antimicrobial prophylaxis in patients with lymphoma receiving B-cell targeted therapies.

SELF ASSESSMENT QUESTION: Which B-cell targeted agent is associated with the highest incidence of infection?

BACKGROUND: The prescribing patterns of prophylactic antimicrobials among physicians at Winship Cancer Institute are inconsistent in patients taking modern B-cell targeted therapies such as Bruton's tyrosine kinase inhibitors, phosphoinositide 3-kinase inhibitors, and venetoclax for different types of lymphomas. Current guidelines provide minimal guidance on the appropriate prevention and management of opportunistic and non-opportunistic infections in this patient population and the literature offers varied data regarding the true incidence of infections with these agents. The purpose of this study is to develop a better understanding of infection risk in these patients with the aim to ultimately design and implement a protocolized approach for antimicrobial prophylaxis to reduce variability in provider practices and improve overall patient care.

METHODOLOGY: This study is a single-center, retrospective chart review of patients ≥ 18 years old undergoing cancer treatment with ibrutinib, acalabrutinib, zanubrutinib, idelalisib, duvelisib, copanlisib, or venetoclax for chronic lymphocytic leukemia, small lymphocytic lymphoma, mantle cell lymphoma, marginal zone lymphoma, or follicular lymphoma from January 1, 2015 to June 30, 2020. Patients were excluded if they had an active infection at anti-cancer treatment initiation or if they had received ≥ 20 mg of prednisone per day (or dose equivalent) for ≥ 3 weeks prior to initiation of anti-cancer therapy. The primary outcome was to evaluate the prescribing patterns of opportunistic infection prophylaxis among patients receiving B-cell targeted therapies. Additionally, data are being analyzed descriptively and with multivariate statistics to characterize and evaluate patterns associated with the development of opportunistic infections and non-opportunistic infections. Clinical outcomes associated with antimicrobial prophylaxis use in the prevention of opportunistic infections in lymphoma patients on anti-cancer therapies will also be assessed.

RESULTS: A total of 168 patients with a median age of 70 years were analyzed. Most patients were men (67.2%), Caucasian (68.4%), not actively enrolled in a clinical trial (92.2%), and had an ECOG performance status of either 0 or 1 (70.2%). Chronic lymphocytic/small lymphocytic lymphoma was the most common primary malignancy (70.8%), followed by mantle cell lymphoma (16.6%). Ibrutinib (66%), venetoclax (22%), and idelalisib (7.7%) were the most common B-cell targeted agents used. Anti-microbial prophylaxis was prescribed in 82 patients (48.8%) and there were 8 cases of opportunistic infections overall. Non-opportunistic infections were more common, which included 40 patients (23.8%) with a documented infection. Cancer treatment was modified in 25 patients (14.8%) due to infection.

CONCLUSIONS: Overall, the incidence opportunistic infections is low. Of the patients who developed an opportunistic infection, 87.5% were on antimicrobial prophylaxis that covered that opportunistic infection. Given this, antimicrobial prophylaxis may still be warranted in lymphoma patients on B-cell targeted therapies. Using these data and further understanding this patient population, protocols can be developed to standardize care.

<https://www.youtube.com/watch?v=JIIQBgkXGrY>

Presenters: Abigail Bouknight

TITLE: Automatic dispensing cabinet optimization in a large, academic medical center

AUTHORS: Abigail Bouknight, Cortney Dodson, Derek Rhodes, Laura Holden

OBJECTIVE: Assess the impact of an optimization algorithm on automated dispensing cabinet efficiency

SELF ASSESSMENT QUESTION: What are the benefits of utilizing an algorithm to optimize ADC inventory?

BACKGROUND: Automated dispensing cabinets (ADCs) have been utilized as a component of the decentralized pharmacy model since the late 1980s as a strategy to improve efficiency (ISMP). While the benefits of ADCs are certainly recognized, assessing optimization of such machines is important to ensure operational efficiency in the healthcare system. Mathematical algorithms are one approach to optimization by evaluating inventory management and adjusting maximum and minimum par levels. The hope with this method is that once an ADC is optimized, there will be a reduction in the number of stock-outs and improved vend:fill ratios. The purpose of this study is to implement a mathematical algorithm on pre-identified machines and evaluate its effectiveness at improving ADC output.

METHODOLOGY: Four ADCs, two intensive care units and two cardiac telemetry units, will be selected for optimization via a previously validated mathematical algorithm. The algorithm will be applied to each medication that has been identified as standard stock. Minimum and maximum par values for each of these medications will be manually adjusted in the ADCs based on the algorithm. Each machine will be analyzed after 60 days of operating under the optimization algorithm. Overall total stock-outs and vend:fill ratios will be evaluated in the before and after periods.

RESULTS: Both the primary outcome (stock-outs) and secondary outcomes (vend:fill) show 3 of 4 machines showing positive percent change post implementation.

CONCLUSIONS: Mathematical algorithms should be considered as an opportunity for successful ADC optimization in a large, academic medical center.

Presenters: Tatyana Givens

TITLE: Benefits Paid for Home or Outpatient INR Monitoring versus Facility INR Monitoring

AUTHORS: Tatyana Givens, Ricky Chan, Ashley Woodhouse

OBJECTIVE: Identify the healthcare dollars benefit paid for patients receiving facility INR monitoring to home and outpatient INR monitoring services.

SELF ASSESSMENT QUESTION: How do healthcare dollars benefit paid differ between home/outpatient and in-clinic INR monitoring?

BACKGROUND: Criteria for billing and scope of supervision surrounding facility or home and outpatient INR monitoring services are different, but evidence supports that clinical outcomes are similar. The purpose of this study was to compare the healthcare dollars benefit paid for patients receiving facility INR monitoring to home/outpatient INR monitoring to highlight economical options.

METHODOLOGY: Eligible patients were those 18 years of age or older receiving chronic (> 3 months) warfarin therapy management at the Center for Medication Management via facility INR monitoring or home and outpatient INR monitoring services. Data was assessed by final claims analysis for total healthcare dollars benefit paid (defined as the total amount paid by a third-party company and patient) and total out of pocket costs for patients receiving home/outpatient INR monitoring and facility INR monitoring. INR results for September 2019 through September 2020 were collected to calculate time in therapeutic range (TTR) and validate current evidence outcomes.

RESULTS: Forty-six patients were included in this IRB-approved study. Sixteen patients were included in the home/outpatient INR monitoring group and 30 patients were included in the in-clinic INR monitoring group. Average healthcare dollars paid (each visit) for home/outpatient INR monitoring and in-clinic INR monitoring were \$5.91 and \$94.20, respectively. Average out of pocket cost (each visit) for home INR monitoring and in-clinic INR monitoring were \$0.71 and \$25.33, respectively. TTR for home INR monitoring and in-clinic INR monitoring were 70% and 71%, respectively.

CONCLUSIONS: Reimbursement rates differ considerably for these two therapeutically equivalent interventions.

Results reveal that patients who monitor INR at home have reduced co-payment costs which might lead to enhanced quality of life while achieving equivalent therapeutic outcomes when compared to in-clinic INR monitoring.

Audiovisual recording link: https://youtu.be/XLix_CpSpQA

Presenters: Shelbie Foster

TITLE: Impact of clinical decision support on outpatient fluoroquinolone prescribing

AUTHORS: Foster S, May A, Quairolis K, Hester A, Kandiah S, Advani S

OBJECTIVE: To assess the change in percentage of inappropriate fluoroquinolone prescriptions written at GHS outpatient clinics before and after CDS panel implementation.

SELF ASSESSMENT QUESTION: In what ways can pharmacists work to continually reduce the rate of inappropriate fluoroquinolone prescriptions?

BACKGROUND: Improving antibiotic prescribing practices is critical to prevent drug resistance, reduce adverse effects, and minimize the use of excess healthcare resources. The majority of antibiotic expenditures in the United States are associated with the outpatient setting and the Centers for Disease Control and Prevention (CDC) estimates that at least 30% of antibiotics prescribed in the outpatient setting are unnecessary. In response, Grady Health System's (GHS) stewardship team along with clinical pharmacists implemented clinical decision support (CDS) panels in the electronic medical record (EMR) to assist providers in prescribing antibiotics known to be inappropriately prescribed in the outpatient setting.

METHODOLOGY: A retrospective chart review of GHS's EMR was utilized to compare patients from February 1, 2019-July 31, 2019 to patients from November 1, 2016-April 30, 2017 who received a prescription for oral ciprofloxacin, levofloxacin, or moxifloxacin from a GHS primary care or neighborhood clinic. Patients were included if they were at least 18 years old.

RESULTS: A total of 406 patients were included. Ciprofloxacin was the most frequently prescribed fluoroquinolone in both the before and after groups. Treatment was deemed inappropriate in 89.3% of patients that were prescribed fluoroquinolones prior to implementation of CDS panels compared to 46.8% after implementation of CDS panels. 80.6% of inappropriate prescriptions in the before group were due to inappropriate indication compared to 70.7% in the after group.

CONCLUSIONS: Implementation of CDS panels in the EMR reduced the proportion of inappropriate fluoroquinolone prescriptions at GHS primary care clinics.

Presenters: Hilary Smith

TITLE: Continuous epinephrine infusion compared to standard bolus dosing in advanced cardiac life support

AUTHORS: Hilary Smith, PharmD; Eric Shaw, PhD; Stephanie Lesslie, PharmD, BCPS, BCCCP

OBJECTIVE: To compare continuous epinephrine infusion to standard bolus dosing in advanced cardiac life support (ACLS).

SELF ASSESSMENT QUESTION: Is there a benefit to use continuous epinephrine infusion over standard bolus dosing during ACLS?

BACKGROUND: Epinephrine is the primary medication administered during advanced cardiac life support (ACLS). During ACLS, epinephrine is most commonly administered by a standard IV push dose of 1 mg every 3 to 5 minutes. Guidelines suggest that epinephrine infusion is a potential option that is comparable to push dose. There are theoretical benefits to administering epinephrine as a continuous infusion during ACLS like maintaining ROSC and blood pressure post cardiac arrest. At our institution, the use of continuous epinephrine infusion is commonly implemented at the provider's discretion. This will be the first study to our knowledge to evaluate the effectiveness of continuous epinephrine infusion to bolus dosing in cardiac resuscitation.

METHODOLOGY: This was a single center, observational, retrospective study. All adult patients that experienced a cardiac arrest and had complete code documentation that received either epinephrine continuous infusion or standard bolus dosing from January 1st, 2019 to December 31st, 2020 were included. The primary outcome was mortality at 24 hours after cardiac arrest. Secondary outcomes were any achievement of ROSC, ICU mortality, survival to hospital discharge with a favorable neurologic outcome (mRS of 3 or less), ICU length of stay, hospital length of stay, and need for renal replacement therapy.

RESULTS: A total of 176 patients were included (136 in continuous infusion group and 40 in bolus group). Mortality was 69% in the bolus group compared to 87.5% in the continuous infusion group, which was statistically significant ($p=0.021$). There were no statistically significant differences between groups in secondary outcomes.

CONCLUSIONS: Continuous epinephrine infusion in cardiac resuscitation was associated with higher mortality than the standard bolus dosing.

https://static.sched.com/hosted_files/2021southeasternresidency/b5/SERC%20Recording%20%281%29.mp4

Presenters: Taylor Miller

TITLE: Impact of Process Changes to Improve Timing of First Dose of Caffeine in Preterm Neonates

AUTHORS: Taylor Miller, Laura Hagan, Corinne Murphy

OBJECTIVE: Describe how stocking loading doses of caffeine in automated dispensing cabinets in the NICU impacted time to first dose of caffeine in preterm neonates.

SELF ASSESSMENT QUESTION: Does improving accessibility of caffeine improve time to first dose?

BACKGROUND: Preterm neonates are at risk for bronchopulmonary disease (BPD). Caffeine improves lung function by increasing central respiratory drive and diaphragmatic activity. Studies suggest caffeine administration within three days of life leads to improved outcomes and a reduction in BPD. The purpose of this quality improvement project was to assess if improving caffeine accessibility has an effect on timing of the first dose in preterm neonates.

METHODOLOGY: This was an IRB approved, retrospective chart review that compared time to first dose of caffeine pre- and post-implementation of a process change that moved to dispense initial doses of caffeine from automated dispensing cabinets in the NICU as opposed to dispensing from central pharmacy. This chart review was conducted from July 1, 2016 to February 28, 2021 and included neonates who received prophylactic caffeine. The primary outcome was to determine if improving accessibility of caffeine in the NICU improved time to first dose in preterm neonates. Neonates were included if they were born less than 29 weeks gestation and received prophylactic caffeine during their hospital stay. Neonates were excluded if they were transferred from another facility, experienced mortality within the first three days of life, or electronic medical records were inaccessible.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Hannah Gipson

OBJECTIVE: To discuss the implementation process of order set changes and compare patient outcomes after updating joint replacement surgical order sets at Huntsville Hospital.

SELF ASSESSMENT QUESTION: What steps can a pharmacist take in ensuring appropriate dosage of medications are used in surgical order sets?

BACKGROUND: A new surgeon was recently added to staff asking for changes to the current perioperative orders for managing patients undergoing total hip, shoulder, and knee joint replacement. The purpose of this study is to assess current joint replacement surgical order sets at Huntsville Hospital and develop new order sets based on literature while taking into consideration recommendations from arthroplasty surgeons, anesthesiologists, advanced practitioners, nurses, pharmacists, and hospital management.

METHODOLOGY: Requested changes were compared with the current order sets. Literature was reviewed prior to meeting with surgery staff to make recommendations on best practices between requested changes and the current order sets. An updated order set was created and reviewed by the surgery staff to agree on desired practice standards. Preliminary data was collected to perform a case-matched comparison between surgeons already practicing similar to the new order set to surgeons practicing similar to the current order set. Outcomes measured included TXA use, VTE management, multimodal pain control, length of stay, readmission rate, and straight catheter requirement.

RESULTS: An extensive literature review of 38 drug or fluids was performed. After measuring preliminary outcomes, current arthroplasty treatment practices appear similar to the new order set.

CONCLUSIONS: Multiple changes have been made in the new order set to help decrease length of stay and readmission rates. The order set is currently being updated and implemented in the electronic health record based on a joint consensus of team members. Education to staff will be provided once the new order set is ready in the electronic system.

Presenters: Madeline Volk

TITLE: Impact of medications for opioid use disorder in people who inject drugs with infections

AUTHORS: Madeline Volk, Michael Veve, Laurence Wright, Sam Yeager, Paul Miller, Mahmoud Shorman, Mark Rasnake, Paul Miller

OBJECTIVE: Identify the outcomes associated with medications for opioid use disorder (MOUD) in people who inject drugs (PWID) with infections

SELF ASSESSMENT QUESTION: Based on this study, which medications are associated with a reduction in leaving AMA and infection-related readmissions in PWID?

BACKGROUND: Infectious complications manifest in PWID, including skin and soft tissue infections, bacteremia, endocarditis, and osteomyelitis. Among PWID hospitalized with infections, high rates of leaving against medical advice (AMA) and subsequent readmissions are reported. The purpose of this study is to determine if outcomes in PWID with infections differ based on receipt of MOUD.

METHODOLOGY: This retrospective cohort study included adult patients hospitalized for infections related to injection drug use from 1/2017-1/2021. Patients were excluded for being on medications for analgesia only, injecting only non-opioid drugs, or being in law enforcement custody. The primary endpoint is a composite of 90-day infection-related hospital readmission and AMA discharge. Categorical variables were compared using the Pearson χ^2 or Fisher's exact test. Continuous variables were compared by the Student's t-test or Mann-Whitney U-test. Logistic regression will be utilized to account for potential confounders.

RESULTS: Among the patients included in this study, 50 received MOUD and 150 did not. The primary outcome occurred in 18 patients in the MOUD group and 85 patients in the non-MOUD group (36% vs. 56%, $p=0.014$).

Leaving AMA occurred in 12 patients in the MOUD group and 60 patients in the non-MOUD group (24% vs. 40%, $p=0.041$). Infection-related readmission occurred in 6 MOUD patients versus 49 non-MOUD patients (12% vs. 33%, $p=0.005$).

CONCLUSIONS: MOUD significantly reduced 90-day infection-related readmission and leaving AMA in PWID with infections.

https://static.sched.com/hosted_files/2021southeasternresidency/46/SERC_Volk.mp4

Presenters: Trinh Vu

TITLE: Pharmacist-Led Medication Histories Reduce Antiretroviral Medication Errors in Hospitalized Patients

AUTHORS: Trinh Vu, Mark Priddy, Zanthia Wiley, Jesse T. Jacob, K. Ashley Jones

OBJECTIVE: Evaluate the impact of medication histories conducted by pharmacists on medication discrepancies in hospitalized patients with HIV.

SELF ASSESSMENT QUESTION: What was the absolute reduction in overall medication error rates after the quality initiative?

BACKGROUND: Patients with human immunodeficiency virus (HIV) are at an increased risk for medication errors during hospitalization compared to those without HIV. Antiretroviral (ARV) medication errors can lead to adverse effects, resistance, and increased healthcare costs, making this an important target for patient safety and stewardship. We sought to evaluate the impact of medication histories conducted by pharmacists prior to ARV order verification on medication errors in this patient population.

METHODOLOGY: We conducted a quasi-experimental study evaluating a quality initiative that aimed to reduce ARV medication discrepancies in our urban academic medical center. Clinical pharmacists were provided structured education and a guide for obtaining accurate medication histories prior to order verification. We evaluated the rate of ARV medication discrepancies before (01/01/2018 – 12/31/2018) and after (01/01/2019 – 12/31/2019) implementation, including the type of discrepancies, discrepancies occurring upon initial order entry, after pharmacist verification, and on subsequent days after medication verification.

RESULTS: We randomly selected 400 patient encounters in the pre- and 400 patient encounters in the post-initiative group for inclusion. The medication error discrepancies were 39.8% and 25.5% ($p=0.0009$) in the pre- and post-initiative groups, respectively, resulting in an absolute reduction of 14.3%. Patients were less likely to have at least one medication error in the post-initiative group (20.0% vs. 37.0%, $p<0.0001$). The overall number of medication errors decreased across all error types during the post initiative period, with the largest impact on drug-drug interactions and drug omission.

CONCLUSION: A reduction in ARV medication errors was observed after implementation of the pharmacist-led ARV medication history quality initiative. Dedicated pharmacist training and management of ARVs can decrease the overall number of medication errors associated with HIV/AIDS.

https://youtu.be/_DCD9ONqeME

Presenters: Adrienne Bundrick

TITLE: Impact of Pharmacist Direct-Acting Oral Anticoagulant Monitoring in the Inpatient Setting

AUTHORS: Adrienne Bundrick, Alyson Burns, John Howard, Mary Blumer, Alex Ewing, Lindsay Reulbach

OBJECTIVE: To evaluate and assess pharmacist monitoring of DOAC agents during inpatient admissions as the new standard of care

SELF ASSESSMENT QUESTION: What outcomes do pharmacists improve through monitoring of DOAC anticoagulant therapy?

BACKGROUND: Optimal anticoagulant dosing is vital, as inappropriate regimens can contribute to morbidity and mortality. Pharmacist involvement in anticoagulation improves patient outcomes in both outpatient and inpatient settings. However, limited studies analyze pharmacist impact of inpatient DOAC monitoring. Recently, Prisma Health-Upstate implemented a standardized process for pharmacist DOAC monitoring. The purpose of this study is to determine the impact of pharmacist DOAC monitoring in the inpatient setting on the incidence of optimal dosing at discharge.

METHODOLOGY: This is a single-center, observational study comparing pre- and post- implementation of a pharmacist DOAC monitoring protocol during hospitalization. The primary outcome is change in incidence of optimal DOAC dose at discharge after implementation of pharmacist monitoring. Secondary outcomes include hospital length of stay, all-cause in-hospital mortality, readmissions, mortality, rates of optimal DOAC therapy, and rate of pharmacist intervention and physician response.

RESULTS: A total of 473 patients were included, with 227 in the pre-group and 246 in the post-group. There was no significant difference in the primary outcome of overall DOAC dose optimization at discharge, with 133/197 (67.51%) doses optimized in the pre-group and 160/220 (72.85%) doses optimized in the post-group, ($p=0.278$). There were significantly higher rates of documented pharmacist DOAC interventions ($p<0.001$) and DOAC doses optimized following provider acceptance of pharmacist intervention in the post- group ($p<0.001$).

CONCLUSIONS: There was no significant difference in overall DOAC dose optimization at discharge. However, this data supports the continued involvement of pharmacists in protocolized DOAC dose optimization.

<https://www.youtube.com/watch?v=IsLeoDIyoT4>

Presenters: Jonathan Mansfield

TITLE: Impact of a Rheumatology Population Management Tool on Clinical Pharmacy Specialist Workflow in a VA Medical Center

AUTHORS: Jon Mansfield, Lori Bennett

OBJECTIVE: Outline medication monitoring parameters for commonly prescribed immunomodulators

SELF ASSESSMENT QUESTION: Which of these medications requires routine monitoring of lipid panels?

BACKGROUND: Rheumatological conditions often require treatment with medications that are associated with significant toxicities and require close monitoring. Active review by a Clinical Pharmacy Specialist (CPS) ensures that patients prescribed these drugs receive guideline-recommended monitoring. At the Ralph H. Johnson VA, a rheumatology population management tool was implemented to enhance monitoring efficiency and streamline CPS workflow. The purpose of this study is to examine the impact of this tool.

METHODOLOGY: Patients were included if enrolled in the VA rheumatology clinic and receiving active treatment.

Health factors within note templates were used to track interventions made by the pharmacist. The primary outcome of this study is to describe the changes in interventions made by the rheumatology CPS after dashboard implementation. The secondary outcomes were to report the changes in number of lab orders by the CPS, progress notes written, and scheduled appointments per day. The safety outcome was to compare emergency department visits before and after dashboard implementation for the patient panel.

RESULTS: There were 992 total interventions in the post-dashboard cohort and 788 in the pre-dashboard cohort. The total number of lab orders placed by the CPS was reduced by approximately five percent. Progress notes written increased by 10 percent, likely due to implementation of a new note template. Average number of appointments scheduled in the clinic was reduced by over 50 percent. There were 108 total ED visits by the patient panel, but only two were related to a medication of interest. Both of these visits were in the pre-dashboard cohort.

CONCLUSIONS: A population management tool implemented into a rheumatology clinic can serve to reduce lab orders, enhance clinic flexibility, and uphold quality of care standards.

LINK: <https://youtu.be/oOscYX3WEHQ>

Presenters: Daniel Schrum

TITLE: Effect of High Cost Medications on Outcomes for Cancer Patients

AUTHORS: Daniel P. Schrum, Meredith T. Moorman, Sally Barbour

OBJECTIVE: Describe the impact of high-cost chemotherapeutic medications on monetary and clinical outcomes.

SELF ASSESSMENT QUESTION: Which of these is true: A.High-cost medications at the end of life have been linked with increased costs with minimal clinical benefit B.Palliative care consultation rates are low even though it has been linked with increased quality of life C.Cost is always correlated with efficacy in terms of chemotherapeutic medications D.A/C E.A/B F.All of the above

BACKGROUND: The prescribing of high-cost cancer medications has been met with increased criticism during recent years, especially in end of life scenarios due to increased cost and limited clinical efficacy. Currently at Duke University Hospital, inpatient use of high-cost medications, many of which are oncology medications, requires an approval process called second level review. This study seeks to quantify clinical and cost outcomes related to second level medications.

METHODOLOGY: This single center retrospective review was conducted at Duke University Hospital (DUH). Second level approval requests from 05/01/2017-04/30/2020 for oncology patients were reviewed. The primary endpoint was survival at 3 months post-initiation. Secondary endpoints included survival at 6 months, palliative care consultation rates and medication-related costs. The primary analysis was conducted on all patients included in the study using descriptive statistics.

RESULTS: A total of 98 patients were included in the analysis. The proportion of patients surviving at 3 months post-initiation was 71%. Survival at 6 months post-initiation was 61%. Palliative care consults or documented goals of care discussions were only accounted for in 40% of cases. The ratio of cost of pharmacy services billed to the patient's insurance compared to GPO cost was 4.8:1.

CONCLUSIONS: The study indicated high rates of patient survival post-discharge, though palliative care consultation rates were relatively low. Medication costs were high for both the patients and the institution.

https://duke.zoom.us/rec/share/WZEKLD1lxT1iDx5ntUBsTtJw5B7H4S4UpX4jR_LvAs-9BOSgdXBLy5V309uVnQ0P.OeKsC0PoWDR5lfgN?startTime=1618856997000

Presenters: Amanda (Mandie) Palcic

TITLE: Evaluation of Outcomes Following Conversion from Other Glucagon-Like-Peptide-1 Receptor Agonists (GLP-1 RAs) to Semaglutide in a VA Health Care System (VAHCS)

AUTHORS: Amanda Palcic, Rebecca Edwards and Camille Robinette

OBJECTIVE: Identify the incidence of diabetic retinopathy (DR) progression or associated complications in Veterans converted from other GLP-1 RAs to semaglutide

SELF ASSESSMENT QUESTION: Was DR progression seen in Veterans who were converted from other GLP-1 RAs to semaglutide?

BACKGROUND: Semaglutide became the preferred GLP-1 RA for the Salisbury VA Health Care System (SVAHCS) in 2018 but has been associated with DR complications. The purpose of this review was to evaluate the Veteran population in the SVAHCS and determine DR progression or other ophthalmic complications after conversion from other GLP-1 RAs to semaglutide.

METHODOLOGY: This was a retrospective quality improvement project. Eligible subjects included in this study were Veterans with a history of diabetic retinopathy converted from other GLP-1 RAs to semaglutide by a SVAHCS healthcare provider from October 1, 2018 to June 30th, 2019. The primary objective was to identify and evaluate progression of DR in Veterans converted to semaglutide. Secondary objectives included identifying the change in A1c and BMI in Veterans before and after semaglutide conversion, assessing the conversion dose of semaglutide, and determining the number of Veterans who discontinued semaglutide post-conversion and the rationale behind their discontinuation.

RESULTS: Of the 28 Veterans included, four Veterans experienced progression of their DR. One Veteran with DR progression experienced a complication. There were minimal differences in A1c and BMI pre- and post-conversion. Half of the Veterans were converted to semaglutide 0.5mg. Five Veterans discontinued semaglutide within 1 year of conversion, either due to gastrointestinal reasons or itching. Similar discontinuation rates for those re-titrated up from 0.25mg and those started at 0.5mg.

CONCLUSIONS: Most Veterans with a history of DR converted to semaglutide did not experience progression or complications of their DR. There was no difference in the number of Veterans who discontinued the medication based on whether they were re-titrated.

LINK: <https://youtu.be/uc0GuqdG-zA>

B IMPACT OF CLINICAL PHARMACY SPECIALISTS' INTERVENTIONS ON 30-DAY CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) READMISSION RATES IN A VETERAN POPULATION

Presenters: Jonathan Ennis

IMPACT OF CLINICAL PHARMACY SPECIALISTS' INTERVENTIONS ON 30-DAY CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) READMISSION RATES IN A VETERAN POPULATION

Authors: Jonathan S Ennis, Mary K Hall, Mary M McGill, Bridget G. Roop
Birmingham VA Health Care System - Birmingham, AL

Background/Purpose: Assess the impact of clinical pharmacy specialists' interventions on COPD 30-day readmission rates and improvements in symptom control in a veteran population.

Methodology: Eligible participants were those admitted and treated for a COPD exacerbation from 12/01/2020 to 02/28/2021. Patients were identified through both primary admission diagnosis and a COPD dashboard for exacerbations. Eligible patients were contacted via telephone after discharge by a pharmacy resident to assess symptom improvement, offer disease state counseling, and ensure appropriate inhaler compliance and technique. Issues that were identified were documented as recommendations for follow up. Follow up was offered to each participant with a clinical pharmacy specialist for medication management.

Results: Thirteen patients were included in this Quality Improvement project. Mean contact time post-discharge was 8 days. All patients included had educational interventions made that included information on proper use, dose, directions, administration, and adherence of inhaler devices for COPD. Nine patients were able to follow up with a clinical pharmacy specialist after discharge. Medication management interventions included refills, therapy additions, and adjustments of medications. We observed one COPD readmission within 30 days (1/13, 7.7%) and two additional COPD readmissions within 60 days (2/13, 15.4%). Three patients continued to follow up with the clinical pharmacy specialist and six patients were referred to pulmonology for outpatient follow up. Efforts to compare readmission rates from a previous quarter were unsuccessful due to unforeseen discrepancies in numbers that we could not attribute to our interventions alone.

Conclusions: Observations included significant patient unfamiliarity with COPD, inhaler administration, and adherence. Due to this, there may be further opportunity for pharmacists to provide education and ease transitions of care after patients are hospitalized for COPD exacerbations. Coordination between inpatient and outpatient services might be beneficial to ensure proper transitions of care for COPD patients. A structured follow-up process and longer service implementation would help fully evaluate the benefit and cost-effectiveness of this service.

Presentation Objective: Discuss educational and medication management interventions made through a pharmacy run COPD clinic for patients recently discharged for a primary COPD exacerbation.

Self Assessment: How can clinical pharmacists intervene and provide benefit in the care of patients with poorly managed COPD?

<https://vimeo.com/539280188>

Presenters: Tiera Williams

TITLE: Identifying Barriers to Under-vaccination in Community-Based Specialty Pharmacy

AUTHORS: Tiera Williams, Jennifer Elliot, Paige Brockington

OBJECTIVE: The objective of this research project is to identify barriers influencing under-vaccinated populations within the Walgreens Community-Based Specialty pharmacies in the metro Atlanta.

SELF ASSESSMENT QUESTION: What is one area of community pharmacy where pharmacists can effect patient willingness to accept vaccines?

BACKGROUND: Under vaccination can lead to the spread of communicable diseases and increase risk of morbidity and mortality in patients with chronic health conditions. Reasons for under-vaccination includes vaccine hesitancy, lack of awareness of the value of vaccines, and limited access to healthcare. Studies have shown that patient education and engagement strategies can increase vaccine uptake in at-risk patient populations. A large part of vaccine hesitancy is related to the lack of education and patient-outreach programs have proven to be a successful strategy in addressing this barrier and increasing vaccine uptake in high-risk patient populations.

METHODOLOGY: A telephone survey was used to collect patient demographics, identify possible sources of social detriments, barriers affecting willingness to receive flu vaccination, healthcare provider involvement in vaccine education, patient preference in receiving educational materials and current vaccination status. The study population consists of patients of Walgreens Community-Based Specialty pharmacies in the Metro Atlanta area, who receive routine refill and reassessment calls. Patients receiving a Limited Distribution Drug or specialty medication were contacted for initial therapy, reassessment or refill task calls and asked to participate in a survey following the call. Patients were identified for survey completion using home zip code as inclusion criteria. A statewide immunization registry, GRITS was used to verify immunization status or determine what vaccinations opportunities were available. Population demographics, including race, education level and income was obtained using Wolfram Alpha Computational Intelligence to evaluate community census information. Census data was then compared to survey data in an attempt to identify underrepresented populations who may be at risk for under-vaccination

RESULTS: This study is ongoing. To date, twelve patients meeting criteria were identified and assessed for barriers to vaccine uptake. Nine patients (75%) identified as Black/African American, representing a majority of patients surveyed. Six of the total patients surveyed (50%) reported not receiving the 2020-2021 flu vaccine. Three of the six unvaccinated patients (50%) reported lack of knowledge and distrust in the healthcare system as a barrier effecting their willingness to accept vaccines. Lack of recommendation and fear of adverse effects were both reported by two patients who also did not receive the 2020-2021 flu vaccine (33%).

CONCLUSIONS: We observed that lack of vaccine recommendations and limited patient knowledge regarding vaccines are the most apparent barriers to vaccine uptake. The pharmacist can play a continued role in increasing vaccine uptake by providing recommendations based on guideline schedules and thorough counseling regarding the benefit of vaccine uptake for patients at the point of care. In the future, this study can be used to identify personalized outreach programs for sub populations identified as under vaccinated with the goal of increasing vaccine uptake and long-term healthcare outcomes.

Presenters: Ashley Kamp

TITLE: Comparison of Intermittent Versus Continuous Infusion Antihypertensives in Ischemic Stroke

AUTHORS: Ashley Kamp, Wennie Huang, Timothy Lassiter, Shreyansh Shah, Beiyu Liu, Bridgette Kram

OBJECTIVE: Describe the effects of intermittent and continuous infusion antihypertensives on BP reduction and the time to alteplase administration in patients with acute ischemic stroke

BACKGROUND: Rapid control of elevated blood pressure (BP) is critical in the management of acute ischemic stroke. Consensus guidelines recommend a BP target <185/110 mmHg for patients eligible to receive thrombolytic therapy with intravenous alteplase. However, the optimal approach to BP management in acute ischemic stroke remains unclear.

METHODS: Patients ≥ 18 years admitted to the emergency department (ED) between September 1, 2013 and August 31, 2020 who received alteplase for acute ischemic stroke and required BP management with an intravenous antihypertensive were included in this multicenter, retrospective cohort study. Specific antihypertensives evaluated in this study included intermittent labetalol and hydralazine and continuous infusion nicardipine and clevidipine. Exclusion criteria were initial administration of a non-study antihypertensive, initial study antihypertensive administration following alteplase, administration of labetalol as a continuous infusion, or receipt of both an intermittent and continuous infusion antihypertensive prior to alteplase. The primary endpoint was the time from ED presentation to alteplase administration.

RESULTS: A total of 179 patients were included. Of these patients, 122 received an intermittent antihypertensive and 57 patients received a continuous infusion antihypertensive. The "door-to-needle" time was 53 minutes for patients who received an intermittent antihypertensive compared to 57 minutes for those who received a continuous infusion antihypertensive ($p=0.17$). The proportion of patients who achieved the BP target within 15 minutes of initial antihypertensive administration and the time from initial antihypertensive administration until the BP target was achieved were similar between treatment groups. In regard to safety, a greater proportion of patients in the continuous infusion antihypertensive group experienced hypotension, but there was no difference in the incidence of hemorrhagic conversion.

CONCLUSIONS: Intermittent antihypertensives appear to be comparably safe and effective to continuous infusion antihypertensives in patients with acute ischemic stroke and are less expensive.

SELF-ASSESSMENT QUESTION: True or False? Faster BP control has been identified as a potential strategy to reduce "door-to-needle" time, which is clinically relevant given the time-dependent benefits of alteplase on neurologic recovery.

LINK TO PRESENTATION: <https://www.youtube.com/watch?v=Ti9SCv6ERrM>

Presenters: Nisha Patel

TITLE: Low Dose Ketamine Use in the Emergency Department for Acute Pain Management

AUTHORS: Nisha Patel, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: List characteristics associated with a positive clinical response to LDK.

SELF ASSESSMENT QUESTION: Which of the following is an ideal candidate for LDK?

BACKGROUND: Opioid misuse in the United States remains a major issue causing thousands of deaths. Finding viable non-opioid alternatives for pain management is pertinent. Low dose ketamine (LDK) has been studied for its use as an analgesic in acute pain management in the emergency department (ED). Evaluating patients for a positive clinical response to LDK could help standardize the patient population that receives LDK in the ED at our institution. The objective of this study is to describe the use of ketamine as an analgesic in the ED-at our institution.

METHODOLOGY: A retrospective chart review was conducted for patients ≥ 18 years of age who received at least one dose of ketamine for an acute pain episode in the ED from January 2018 to December 2019. The primary endpoint was the amount of morphine milligram equivalents (MME) of opioids used with LDK. Univariate and multivariate logistic regression was used to determine characteristics associated with a positive clinical response to LDK (defined as a reduction in pain scores from baseline to second pain score within 60 minutes with absence of major adverse effects).

RESULTS: A total of 100 patients were included in this study. The median MME of opioids used with LDK was 5. There were 62% of patients with a positive clinical response to LDK and 4% experienced a major adverse event. Characteristics associated with a positive clinical response were weight < 85 kg ($p=0.018$) and administration of a subsequent dose ($p=0.012$).

CONCLUSIONS: In patients with an acute pain episode, MME of opioids used with LDK was low. Overall, LDK is safe and effective for use at 0.3 mg/kg in patients with an acute pain episode.

Videostream: <https://youtu.be/apWZlwapwUk>

Presenters: Audrey Wenski

TITLE: The impact of heparin initiation boluses on achieving targeted activated partial thromboplastin time (aPTT)

AUTHORS: Audrey Wenski, Chad Alligood

OBJECTIVE: Evaluate if heparin bolus infusions increase frequency of therapeutic aPTT levels within 24 hours.

SELF ASSESSMENT QUESTION: Do heparin boluses increase the probability of achieving targeted aPTT levels within 24 hours?

BACKGROUND: Patients with deep vein thrombosis (DVT), pulmonary embolisms (PE) or acute coronary syndrome (ACS) face higher mortality and rates of clot recurrence if left untreated. Anticoagulation reduces the risk of mortality. Current prescribing practices at Vidant Medical Center include frequently omitting heparin initiation boluses doses prior to continuous infusions. The purpose of this study was to evaluate the use of heparin boluses at a large academic medical center and determine if patients reached targeted aPTT levels more quickly when an initiation bolus was administered or if started on a maintenance infusion alone.

METHODOLOGY: This single center, retrospective review included adult patients who had received heparin infusions for DVT/PE or ACS from October 2019 to December 2019. Patients were excluded if they had an indication for heparin infusion other than DVT/PE or ACS, if appropriate laboratory data was not collected, or if patients had received alteplase therapy within 24 hours of heparin initiation. Data was obtained through electronic health record reports and the evaluation of patient medical records.

RESULTS & CONCLUSIONS: Time to targeted PTT within the first 24 hours was approximately 2 hours shorter for patients who did NOT receive an initiation bolus, although this may not be clinically significant. The Bolus group was more likely to be supratherapeutic at first PTT check and at 24 hours. Additionally, something to consider in the future would be alternative bolus dosing strategies in patients eligible for a bolus, particularly in those being treated for DVT/PE.

LINK TO PRESENTATION: <https://youtu.be/rhiC4DJ9qWQ>

I Predicted benefits of a 14-pathogen polymerase chain reaction assay compared to a standard diagnostic cascade of community acquired meningitis in a community health system

Room H

Presenters: Samantha Mayes

TITLE: Predicted benefits of a 14-pathogen polymerase chain reaction assay compared to a standard diagnostic cascade of community acquired meningitis in a community health system

AUTHORS: Samantha N. Mayes; Molly H. Thompson, Jacquelyn Bryant, Molly H. Bennett

OBJECTIVE: Identify opportunities for expedited diagnosis, definitive antimicrobial therapy, and reduced financial burden with meningitis/encephalitis (ME) PCR Panel implementation.

SELF ASSESSMENT QUESTION: What is one potential benefit of employing a meningitis/encephalitis PCR assay at a community hospital?

BACKGROUND: Meningitis and encephalitis are serious central nervous system infections caused by bacteria, viruses, or fungi. Rapid pathogen identification and definitive therapy reduces morbidity and mortality. Current diagnostic cascade involves provider-directed combination of on-site and send-out microbiologic cultures and polymerase chain reactions (PCRs). A PCR panel testing for 14 common meningitis/encephalitis pathogens, requiring 200 µl of cerebrospinal fluid (CSF) resulting in 1-2 hours is commercially available.

METHODOLOGY: This study was an IRB exempt, retrospective chart review of adult and pediatric patients with suspected ME and a CSF culture who were admitted to or received emergency department care at a multi-site community health system between June 2019 and December 2019. Data collected included demographic data, differential diagnoses, microbiologic tests, antimicrobial therapy and final diagnoses. Descriptive statistics were employed to analyze patient demographics and predicted outcomes. Primary outcome was a composite of potential benefit with the implementation of an ME PCR assay including reduction in time to definitive diagnosis, antimicrobial days of therapy and/or microbiologic testing.

RESULTS: 52 of 165 patients screened met inclusion criteria. Of those, 30 (57.7%) patients demonstrated opportunity for optimized care with implementation of ME PCR assay. 7 patients (23.3%) displayed opportunities for expedited positive pathogen identification. 17 patients (56.7%) would have had a final negative result within hours if ME PCR assay was employed, potentially eliminating up to 5 days of empiric therapy. There were opportunities for reduced anti-infective usage in 23 patients (76.7%) avoiding up to 2.25 antimicrobial therapy days.

CONCLUSIONS: Implementation of a ME PCR assay may expedite diagnosis, decrease time to definitive antimicrobial therapy, and reduce financial burden of meningitis/encephalitis to patients and health systems.

[Link to Presentation](#)

I Symptom Free Pee, Let It Be: Effect of a Microbiology Comment Nudge on Asymptomatic Bacteriuria

Room I

Presenters: Madeline Belk

TITLE: Symptom Free Pee, Let It Be: Effect of a Microbiology Comment Nudge on Asymptomatic Bacteriuria

AUTHORS: Madeline Belk, Taylor Steuber, Jonathan Edwards

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe how to create and implement a microbiology comment nudge as a means of reducing the inappropriate treatment of asymptomatic bacteriuria.

SELF ASSESSMENT QUESTION: When would you expect to see a microbiology comment nudge on a urine culture?
 a. A culture growing > 100,000 CFU of bacteria
 b. A culture growing < 100,000 CFU of bacteria
 c. A culture growing mixed urogenital flora
 d. A culture with no growth of bacteria

BACKGROUND: The presence of bacteria in the urine without symptoms of a urinary tract infection (UTI) is known as asymptomatic bacteriuria (ASB). It occurs in many patient populations, such as healthy female patients, and treatment is not warranted majority of the time per national guidelines. However, ASB is oftentimes treated and may lead to downstream consequences like antibiotic resistance and adverse drug events. In an effort to minimize treatment of ASB, the microbiology department and Antimicrobial Management Team (AMT) created a microbiology comment to prompt providers to assess for ASB in patients with positive urine cultures receiving antibiotics.

METHODOLOGY: This single-center, quasi-experimental study evaluated adult patients admitted to the hospital with a positive urine culture who received antibiotic treatment in the absence of signs and symptoms of a UTI. The primary endpoint assessed treatment of ASB with antibiotics before and after implementation of the microbiology comment on urine cultures. Data was analyzed from March 1, 2020-March 31, 2020 for the pre-intervention group and from March 1, 2021-March 31, 2021 for the post-intervention group. Education was provided through a recorded video and knowledge assessed by a pre-post survey. A chi-square test of independence was used to analyze the primary endpoint. Secondary endpoints compared antibiotics administered, duration of antibiotic therapy, and length of stay between groups.

RESULTS: 472 patients were screened, 34 patients were included in the pre-implementation group and 28 patients in the post-implementation group. Preliminary results show similar treatment rates of ASB between groups (22/34 (64.7%) vs 17/28 (60.7%), $p=0.796$). Patients in the post-implementation group showed a trend towards increased discontinuation of antibiotics after culture resulted (0% vs 27.8%, $p<0.05$), a reduction in antibiotics prescribed at discharge (32.4% vs 10.7%, $p=0.066$), and an improvement in symptom documentation (8.8% vs. 28.6%, $p=0.053$). Median days of therapy were similar between groups (6 (5, 8.5) vs 6 (3,8), $p=0.060$).

CONCLUSIONS: Preliminary results show that implementation of a microbiology comment nudge on urine cultures may improve the discontinuation of antibiotics after culture resulted, antibiotics prescribed at discharge, duration of therapy, and symptom documentation in the electronic health record.

L Impact of Pharmacist Involvement by Utilizing the 4Ts Score in the Clinical Assessment for Heparin-Induced Thrombocytopenia

Room E

Presenters: Robin Lonscak

TITLE: Impact of Pharmacist Involvement by Utilizing the 4Ts Score in the Clinical Assessment for Heparin-Induced Thrombocytopenia

AUTHORS: Robin C. Lonscak, Scott Camp, Thu-Kim Phan, Kerry Ward, Amanda Stankowitz

OBJECTIVE: Describe the potential impact of pharmacist intervention on laboratory testing for heparin-induced thrombocytopenia (HIT) by utilizing the 4Ts score.

SELF ASSESSMENT QUESTION: True or False? Pharmacists can utilize the 4Ts score to identify patients at low risk for HIT.

BACKGROUND: The 4Ts score is a validated clinical tool used to screen patients with suspicion of HIT. A low 4Ts score indicates a very low probability of HIT with a 99.8% negative predictive value. Testing is not recommended in patients with a low 4Ts score. The purpose of this project was to determine the clinical and financial impact of pharmacist involvement in utilizing the 4Ts score for HIT.

METHODOLOGY: Adult patients who received a platelet-factor 4 enzyme-linked immunosorbent assay (PF4-ELISA) from January 1, 2019 through December 31, 2019 were included. Patients with no documented heparin use or previous exposure to heparin were excluded. Chart review was conducted to calculate the 4Ts score for each patient utilizing data available at the time the ELISA was ordered. The primary outcome was the number of PF4-ELISA tests ordered in patients with low 4Ts scores. The secondary outcome was the potential cost-savings of pharmacist involvement by utilizing the 4Ts score prior to ordering PF4-ELISA tests.

RESULTS: Of the 340 patients receiving PF4-ELISA tests during the study period, 315 met inclusion criteria. There were 153 PF4-ELISA tests ordered for patients with a low 4Ts score and 163 for patients with an intermediate to high score. With a cost of \$221.40 per PF4-ELISA, pharmacist intervention could have saved \$33,874.20 in unnecessary testing expenses.

CONCLUSIONS: Pharmacist intervention utilizing the 4Ts score can prevent unnecessary laboratory testing and excess costs in patients with suspected HIT.

PRESENTATION LINK: https://youtu.be/UOK_-7DA6TQ

O ASSESSING THE IMPACT OF ONCOLOGY CLINICAL PHARMACY SERVICES ON CARBOPLATIN DOSING

Room A

Presenters: Justin Gruca

TITLE: Assessing the Impact of Oncology Clinical Pharmacy Services on Carboplatin Dosing

AUTHORS: Justin Gruca, Laura Beth Parsons, Danielle Dauchot, Belinda Li, Darby Siler, Rachel Matthews, Meredith McKean

OBJECTIVE: Define the Calvert formula and identify the minimum SCr value recommended by NCCN recommendations

SELF ASSESSMENT QUESTION: Per the NCCN recommendations: what should be the maximum creatine clearance value used in the Calvert formula? a)90 mL/min b)100 mL/min c)125 mL/min d)150 mL/min

BACKGROUND: The Gynecologic Oncology Group (GOG) and National Comprehensive Cancer Network (NCCN) have published recommendations to optimize carboplatin dosing. These guidelines specifically address weight (e.g., ideal vs. adjusted), minimum serum creatinine (SCr) values, and dose caps when using the Calvert formula.

Overdosing carboplatin can lead to toxicity, while under dosing can lead to inadequate treatment. Pharmacists can play a vital role in optimizing chemotherapy dosing. This study assesses the role of a medical oncology pharmacy specialist in carboplatin dosing

METHODOLOGY: This study was an IRB approved, single-center, retrospective study comparing the accuracy of carboplatin dosing with or without a medical oncology pharmacy specialist. This was divided into two cohorts: the pre-specialist cohort from December 1, 2015 and November 30, 2017 and post-specialist cohort from August 1, 2018 and July 31, 2020. Adult subjects were included if they were admitted and received at least one dose of carboplatin under the medical oncology or gynecologic-oncology service lines. Subjects were excluded if they were treated by a different service line or in the outpatient clinic. The primary objective was to assess whether the ordered carboplatin dose was within 5% of the calculated carboplatin dose following NCCN recommendations. Data was collected via electronic and paper medical records

RESULTS: To be presented

CONCLUSIONS: To be presented

Presentation Link: <https://youtu.be/M7SS6BwLwKU>

1 Incidence and Risk factors Associated with Antidepressant and Anxiolytic Use Following Kidney Transplant

Room F

Presenters: Aubrey Slaughter

TITLE: Incidence and Risk factors Associated with Antidepressant and Anxiolytic Use Following Kidney Transplant

AUTHORS: Aubrey Slaughter, Melissa Laub, Rachel Stephens, Joshua Clifton, Rajan Kapoor

OBJECTIVE: At the conclusion of my presentation, the participant will be able to assess the incidence of and risk factors associated with antidepressant and anxiolytic change after kidney transplant.

SELF ASSESSMENT QUESTION: What risk factors influenced an antidepressant and anxiolytic change after kidney transplant?

BACKGROUND: Psychosocial challenges are not uncommon after solid organ transplant. 50% of patients experience at least one episode of significant depression or anxiety within the first two years after transplant. Depressive and anxiety symptoms have an increased risk for negative outcomes, medication non-adherence, and higher rates of graft failure and/or mortality. Little evidence exists on the incidence of depression and anxiety post-transplant and the percent of patients taking medications for these indications. This study aims to determine the incidence of antidepressant and anxiolytic change within the first two years after kidney transplant.

METHODOLOGY: This is a single-site, retrospective chart review of patients age 18 years or older who received a kidney transplant at AU Medical Center between December 31, 2014 and December 31, 2017. Primary outcome is incidence of antidepressant and anxiolytic change within the first two years after transplant. Statistical methodology includes descriptive statistics for patient demographics and logistic regression to examine potential risk factors.

RESULTS: Of the 185 patients analyzed, 26 (14.1%) patients experienced a change in an antidepressant and/or anxiolytic within two years after their kidney transplantation. Risk factors associated with antidepressant change are female sex (OR 4.58, $p < 0.05$) and number of readmissions (OR 1.23, $p < 0.05$). Age was associated with an anxiolytic change (OR 0.97, $p < 0.05$).

CONCLUSIONS: Antidepressant and/or anxiolytic change within the first two years after transplantation occurred in over 10% of the patients; however, further studies need to evaluate potential risk factors associated with these changes.

Link to presentation: <https://youtu.be/XG373nSORrA>**B Evaluation of Pharmacist Impact on Use of Guideline Recommended Antidiabetic Therapies for Cardiovascular Risk Reduction in a High-Risk Patient Population**

Room K

Presenters: Matthew Holt

TITLE: Evaluation of Pharmacist Impact on Use of Guideline Recommended Antidiabetic Therapies for Cardiovascular Risk Reduction in a High-Risk Patient Population

AUTHORS: Matthew L. Holt, Jamie Crossman

OBJECTIVE: Discuss evidence regarding the benefits of GLP-1 receptor antagonists and SGLT2 inhibitors in patients with T2DM and ASCVD or risk factors for ASCVD.

SELF ASSESSMENT QUESTION: How does clinical pharmacist intervention affect prescribing of GLP-1 receptor antagonists and SGLT2 inhibitors in a patient population that has T2DM and significant cardiac risk?

BACKGROUND: Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of mortality in patients with type 2 diabetes mellitus (T2DM). SGLT2 inhibitors and GLP-1 agonists reduce the incidence of cardiac events, and guidelines recommend these agents be included in the current standard of care for patients with T2DM and ASCVD or risk factors for ASCVD. The purpose of this study is to evaluate the impact of a pharmacist on use of SGLT2 inhibitors and GLP-1 antagonists in patients with T2DM and ASCVD or with risk factors for ASCVD in our clinic.

METHODOLOGY: An IRB approved chart review of patients of a local clinic with T2DM and ASCVD or risk factors for ASCVD was conducted. Pharmacist intervention began with dissemination of education regarding available SGLT2 inhibitors and GLP-1 agonists, their respective Georgia Medicaid preferred status, and pertinent cardiovascular data. Patients' charts were screened to determine if they were candidates for an SGLT2 inhibitor or GLP-1 agonist. The patients' providers were notified if the patients were deemed candidates for an SGLT2 inhibitor or GLP-1 agonist via an electronic message. The primary outcome was change in patients having an SGLT2 inhibitor or GLP-1 antagonist included on their medication list after pharmacist intervention. Secondary outcomes included difference in prescribing at baseline between patients referred to a pharmacist for diabetes management and those who had not, percentage of providers who expressed significant barriers to prescribing SGLT2 inhibitors and GLP-1 receptor antagonists, and overall successful interventions to reduce cardiac risk.

RESULTS: In progress

CONCLUSIONS: In progress

B Pharmacist Outreach to Improve Appropriate Glucagon Prescribing in Diabetes Patients Being Treated with Rapid-Acting Insulin Room J

Presenters: Nakiya Whitfield

TITLE: Pharmacist Outreach to Improve Appropriate Glucagon Prescribing in Diabetes Patients Being Treated with Rapid-Acting Insulin

AUTHORS: Nakiya T. Whitfield; Ben Smith; Patrick Gregory; Susan Spratt; Beiyu Liu

OBJECTIVE: The primary objective was to compare the rate of glucagon prescribing between the Pharmacist Intervention and the Control group in the one month period following pharmacist-led provider outreach. The second objective was to examine prescribing patterns of glucagon, previous episodes of hypoglycemia, and to identify Type 1 patients with diabetes not under the care of an Endocrinologist.

SELF ASSESSMENT QUESTION: This study illustrated an increase in appropriate glucagon prescribing in the 1-month period following pharmacist outreach. True or False

BACKGROUND: Hypoglycemia is a common complication of type 1 and type 2 diabetes mellitus, and is a major limiting factor in the glycemic management of diabetes. Generally, patients using antidiabetic medications such as insulin or certain oral hypoglycemic agents are at increased risk for hypoglycemia. Additional risk factors for hypoglycemia include tight glycemic control, changes in diet or physical activity, renal disease, as well as extremes of age such as young children or older adults. If not recognized and acted upon, hypoglycemia can cause acute harm to those with diabetes or unintentionally others, especially if it causes accidents or other injuries. The American Diabetes Association (ADA) recommends glucagon to be prescribed for all individuals at increased risk of clinically significant hypoglycemia, particularly level 2 hypoglycemia, defined as blood glucose < 54 mg/dL.

Glucagon emergency injection kits are a resource used to manage hypoglycemia in the outpatient setting, and are carried by many emergency medical service providers, patients, family members, and other non-medical personnel. Due to the effectiveness and availability, glucagon emergency kits have been shown to reduce emergency department visits, and overall health care cost in addition to providing peace of mind to patients and caregivers. Despite these known benefits, glucagon continues to be under-prescribed. Although the exact cause is unknown, it is thought that glucagon under-use could be attributed to inadequate education of health care providers, patients, and caregivers. METHODOLOGY: This project was a prospective, double-arm, pre-post interventional study. Patients with a primary care provider (PCP) who are eligible for Duke Population Health Management Office (PHMO) services were initially identified. From this, the Duke PHMO analytics team then created a report which identified patients who were prescribed a rapid acting insulin and were not prescribed glucagon at baseline as potential subjects for this study. Patients were included in the study if they were prescribed a rapid acting insulin (insulin analogs, regular insulin AND mixes) and if they were ≥ 18 years of age. Patients were excluded from the study if they were deceased, under hospice care, had a documented allergy or hypersensitivity to glucagon, or if the patient was hospitalized at the time of outreach for any other condition other than hypoglycemia.

All eligible patients with an upcoming PCP or Endocrinology appointment between October 1st, 2020 and January 31st, 2021 were randomized into two groups: (1) Pharmacist intervention, and (2) No Pharmacist intervention. For both intervention and control groups, the pharmacist would review the chart before the appointment to confirm that the patient would be an appropriate glucagon candidate. The pharmacist intervention consisted of a communication encounter to the PCP or Endocrinologist to consider the addition of glucagon emergency kit through the electronic health record. An order for the glucagon emergency kit was also pended and routed to the provider along with the recommendation. This message was sent approximately two to five business days prior to an upcoming appointment. If requested by the provider, a pharmacist would also outreach to the patient to provide education on glucagon. Patients in the control group did not receive pharmacist intervention. One month after the scheduled appointment, follow up on the resulting glucagon prescription rates was documented and compared between groups.

RESULTS: Upon pharmacist outreach, 61 of 109 patients (56.0%) in the intervention group were prescribed a glucagon product within one month of their PCP or Endocrinology appointment. This was statistically significant (p-value <0.001) when compared to the glucagon prescribing rate within the control group, which had 1 in 113 patients (0.9%) prescribed a glucagon product within one month of their PCP or Endocrinology appointment

CONCLUSIONS: Pharmacist-led provider outreach prior to a PCP or Endocrinology appointment has a positive and significant impact on glucagon prescribing rates when comparing intervention and control groups.

YOUTUBE LINK: <https://youtu.be/LUXJxUWDi5Y>

C Dobutamine versus Milrinone in the Treatment of Cardiogenic Shock and/or Acute Decompensated Heart Failure

Room D

Presenters: Megan Morrow

TITLE: Dobutamine versus Milrinone in the Treatment of Cardiogenic Shock and/or Acute Decompensated Heart Failure

AUTHORS: Megan Morrow, Naadede Badger-Plange, Leah Cochran, Hanna Park, Disa Patel, Abigail Shell

OBJECTIVE: Determine if outcomes in patients with acute decompensated heart failure (ADHF) or cardiogenic shock (CGS) differ based on the inotropic agent administered.

SELF ASSESSMENT QUESTION: Are there differences between outcomes in patients with ADHF and/or CGS who were treated with dobutamine or milrinone?

BACKGROUND: Dobutamine and milrinone are routinely used in critically ill patients when treating low cardiac output states. However, primary literature comparing the two inotropes is sparse and inconclusive. The purpose of this study is to evaluate outcomes in patients with ADHF and/or CGS who were treated with dobutamine or milrinone.

METHODOLOGY: Adults admitted to Piedmont Atlanta Hospital's intensive care unit (ICU) with ADHF and/or CGS from January 2019-December 2020 who received either dobutamine or milrinone were randomly selected and evaluated via retrospective chart review. Thirty-eight patients were included in this study, nineteen in each group.

Exclusion criteria included patients on home dobutamine or milrinone, awaiting cardiac transplant, or receiving both inotropes during hospitalization. The primary endpoint was the requirement of advanced mechanical support.

Secondary endpoints included need for up-titration or addition of new vasopressor therapy, time on inotropes, ICU length of stay (LOS), renal replacement therapy (RRT), inotrope cost per hospitalization, and all-cause in-hospital mortality.

RESULTS: There was no significant difference between the dobutamine and milrinone groups, respectively, in requirement of advanced mechanical support (4 vs. 6 patients; $p=0.461$), addition or up-titration of vasopressors (13 vs. 12 patients; $p=0.732$), ICU-LOS (7.5 vs. 9.1 days; $p=0.460$) or inotrope cost per hospitalization (\$83.40 vs. \$99.10, $p=0.559$). There was a significant difference between groups regarding time on inotropes (3.2 vs. 6.6 days; $p=0.002$), RRT (11 vs. 5 patients, $p=0.049$), and all-cause in-hospital mortality (12 vs. 3 patients; $p=0.003$).

CONCLUSION: Based on this study, choosing one inotrope over the other has no clear impact on the requirement of advanced mechanical support in patients with ADHF or CGS.

Video link: <https://vimeo.com/539386382>

Y Impact of an Additional Pharmacist Phone Call on Retention of HIV Pre-Exposure Prophylaxis (PrEP) Patients in an Outpatient Specialty Pharmacy Program

Room G

Presenters: Sarah Corpening

TITLE: Impact of an Additional Pharmacist Phone Call on Retention of HIV Pre-Exposure Prophylaxis (PrEP) Patients in an Outpatient Specialty Pharmacy Program

AUTHORS: Sarah Corpening; Kiara Byrd-Glover; Katie Trotta; Mohamed Aboemeara; Erika Giblin

OBJECTIVE: Identify the barriers to clinical follow-up and monitoring for PrEP patients.

SELF ASSESSMENT QUESTION: How can pharmacists address lapses in therapy in PrEP patients?

BACKGROUND: Develop a service to increase patient retention in clinical management at an outpatient specialty pharmacy to prevent lapses in therapy for PrEP patients.

METHODOLOGY: Eligible patients ≥ 18 years of age receiving PrEP therapy from the study site enrolled in standard clinical counseling and monitoring during from September 2020 to March 2021 were included. A clinical pharmacist contacted each patient in the intervention group to confirm follow up clinical PrEP monitoring was complete or scheduled. This ensured a new PrEP prescription was received prior to the patient running out of medication. The pharmacist also assessed barriers to HIV testing, adherence, and PrEP continuation. Retention was determined by lack of lapse in therapy based on the initial prescription's final refill date and the written date of the new prescription.

RESULTS: In progress: Of the 117 patients screened, 69 were included in the control group and 60 in the intervention group. The data of all 69 patients of the control group was analyzed. At the time of data collection, only 41 patients in the intervention group were eligible for analysis. Based on preliminary data, 39 patients were retained in the control group (57%), and 29 patients have been retained post-intervention (71%). The most common barrier to retention is forgetfulness.

CONCLUSIONS: In progress: Preliminary data suggests an additional pharmacist call to ensure proper HIV screening in PrEP patients improves patient retention and decreases lapses in therapy. Patients who otherwise would have had the barrier of forgetfulness were reminded of required monitoring before running out of their prescription.

Presentation Access: <https://youtu.be/h9gw7AI7zTM>

R EVALUATION OF PHARMACIST RESPONSE ON DOOR-TO-NEEDLE TIMES DURING ACUTE ISCHEMIC STROKE

Room B

Presenters: Kayla Nguyen

TITLE: Evaluation of Pharmacist Response on Door-to-Needle Times During Code Stroke

AUTHORS: Kayla Nguyen, Erica Roman, Kim Heath, Rachel Hemberger, Tudy Hodgman

PRESENTATION OBJECTIVE: Identify potential benefits of pharmacist presence during the management of acute ischemic stroke.

SELF-ASSESSMENT QUESTION: According to previously published literature, what potential benefit is associated with pharmacist presence in the management of acute ischemic stroke?

BACKGROUND: Timely administration of alteplase for ischemic stroke is associated with improved outcomes.

Guidelines recommend a door-to-needle (DTN) time, defined as time from patient arrival to time of alteplase administration, of 60 minutes or less. It is reported that less than one-third of patients met this goal in 2011. Previous studies suggest pharmacist response during stroke management reduces DTN times. The purpose of this study is to evaluate the impact of pharmacist response during code strokes by comparing DTN times in those with and without pharmacist response.

METHODOLOGY: This was a retrospective cohort analysis of patients between 18 and 89 years of age who received alteplase for acute ischemic stroke. Patients were allocated based on location, which determined pharmacist response during the code stroke. The primary endpoint was DTN time. Secondary endpoints included proportion of patients with DTN times ≤ 60 , ≤ 45 , and ≤ 30 minutes; imaging-to-needle (ITN) time; appropriateness of alteplase dosing; and proportion of patients with scaled body weights prior to alteplase administration to ensure accurate dosing.

RESULTS: Median DTN times were similar between pharmacist response and no pharmacist response groups (34.0 minutes vs 38.0 minutes). More appropriate alteplase dosing and use of scaled body weights were observed in the pharmacist response group (87.5% vs 81.7% and 87.5% vs 65.0%, respectively). Statistical analyses were not performed due to small sample size.

CONCLUSION: Minimal difference in DTN times were observed; however, the pharmacist response group did trend towards increased alteplase dosing accuracy and appropriate use of body weights.

PRESENTATION LINK: https://youtu.be/nyx_yhJ5ExU

R Impact of Propofol on Vasopressor Use in Mechanically Ventilated Septic Patients

Room C

Presenters: Mya Baker

TITLE: Impact of Propofol on Vasopressor Use in Mechanically Ventilated Septic Patients

AUTHORS: Mya Baker, Brittany NeSmith, Rachel Langenderfer, Regan Porter

OBJECTIVE: Identify differences in vasopressor requirements and outcomes for mechanically ventilated sepsis patients sedated with CIV propofol versus CIV midazolam or dexmedetomidine.

SELF ASSESSMENT QUESTION: In this study does CIV propofol for sedation cause a higher incidence of hypotension requiring vasopressor support in mechanically ventilated septic patients?

BACKGROUND: According to PADIS guidelines, nonbenzodiazepine sedatives are preferred in critically ill, mechanically ventilated adults due to improved outcomes such as ICU length of stay, duration of ventilation, and delirium. Propofol may potentiate or worsen hypotension which may prompt providers to choose another agent for sedation. The purpose of this study is to compare incidence of vasopressor use in continuous intravenous (CIV) propofol versus other CIV agents when used for sedation.

METHODOLOGY: This study is a multi-center retrospective cohort chart review from June 2013 to June 2019. Inclusion criteria include age ≥ 18 years, intubation within 48 hours of admission, sepsis criteria met within 2 hours prior to intubation, and started on continuous infusion analgo-sedation within 4 hours of intubation. Patients were excluded if they were not septic 2 hours prior to intubation, met septic shock criteria before sedation, immunosuppressed, intubated before arrival, or had a vasopressor requirement of less than 2 hours. The primary objective of this study is to assess the incidence of vasopressor support in mechanically ventilated septic patients sedated CIV propofol versus CIV midazolam or dexmedetomidine. Secondary objectives include an absolute change in mean arterial pressure (MAP), a greater than 20% decrease in MAP from baseline, average maximum vasopressor infusion rates, duration of vasopressor use, time-to-vasopressor use, length of ICU stay, and in-hospital mortality.

RESULTS: There were 200 participants enrolled in the IRB approved study, 100 in each group. Vasopressors were used in 31% of patients in the CIV propofol group and 44% in the CIV non-propofol group ($P=0.06$). Average baseline MAP was 96 mmHg in the CIV propofol group and 99 mmHg in the CIV non-propofol group.

CONCLUSIONS: This retrospective chart review demonstrated a higher incidence of vasopressor use in patients sedated with either CIV midazolam or dexmedetomidine than those sedated with CIV propofol.

<https://youtu.be/iH3wkBbJU5I>

I **Evaluating the use of carbapenem-sparing regimens in Klebsiella pneumoniae and Escherichia coli that are resistant to piperacillin/tazobactam yet susceptible to ceftriaxone** Room I

Presenters: Maggie Raker

TITLE: Evaluating the use of carbapenem-sparing regimens in Klebsiella pneumoniae and Escherichia coli that are resistant to piperacillin/tazobactam yet susceptible to ceftriaxone

AUTHORS: Maggie Raker, Amy Taylor, Eric Shaw

OBJECTIVE: At the conclusion of my presentation, the participant will be able to evaluate the efficacy and safety of non-carbapenem antibiotic use in patients with Escherichia coli and Klebsiella pneumoniae resistant to piperacillin/tazobactam yet susceptible to ceftriaxone.

SELF ASSESSMENT QUESTION: Is it reasonable to use a non-carbapenem antibiotic in patients with the specified resistance pattern?

BACKGROUND: Gram negative bacilli are a common cause of hospitalizations with increasing antimicrobial resistance. Recently, a unique resistance pattern of piperacillin/tazobactam non-susceptible (P/T-NS), ceftriaxone susceptible (CTX-S) Escherichia coli (E. coli) and K. pneumoniae (KP) was identified at Memorial Health University Medical Center (MHUMC). The purpose of this study was to determine if P/T-NS, CTX-S E. Coli and KP can be effectively and safely treated with non-carbapenem therapies such as CTX.

METHODOLOGY: This study was a single-center, retrospective chart review approved by the IRB. Included patients were identified by all-site cultures of E. coli and KP organisms with P/T-NS, CTX-S isolates from January 1st, 2019 to June 30th, 2020. Study groups were selected by choice of directed therapy: carbapenem vs. non-carbapenem agents.

RESULTS: The population size of the groups was imbalanced: carbapenem treatment (n=2), non-carbapenem treatment (n=18). Since a majority of patients never met primary endpoint criteria of time to infection resolution, defined as WBC

I **Evaluation of Convalescent Plasma Transfusion for the Treatment of Covid-19** Room H

Presenters: My Hanh Duong

TITLE: Evaluation of Convalescent Plasma Transfusion for the Treatment of Covid-19

AUTHORS: My Hanh Duong, Hyeseung Kang

OBJECTIVE: Discuss the efficacy and safety of convalescent plasma for the treatment Covid-19 in adult patients.

SELF ASSESSMENT QUESTION: Does convalescent plasma transfusion provide mortality reduction in patients with Covid-19?

BACKGROUND: Coronavirus disease 2019 (COVID-19) is a viral respiratory infection caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Clinical manifestations of COVID-19 can range from mild, self-limiting respiratory tract illness to severe progressive pneumonia that can lead to death. Convalescent plasma transfusion (CPT), a type of passive immunotherapy, is the transfer of antibodies from recovered donors in the form of plasma serum to help confer immunity in sick patients. In April 2020, FDA authorized the expanded access program for CPT to be used for the treatment of Covid-19. The aim of this study is to determine if CPT was an effective and safe COVID-19 treatment for patients who were admitted to our hospital.

METHODOLOGY: This is a single-center, retrospective chart review on COVID-19 patients who were admitted to Wellstar North Fulton from May 1st, 2020 to August 25th, 2020. A drug utilization report will be used to identify patients who received CPT for the treatment of COVID-19. Data will be collected and analyzed in a password-protected Microsoft Excel.

RESULTS: 4 patients in CPT group and 3 patients in non-CPT group died within 28 days of hospital admission. CPT group had a lower risk of 28-day-all-cause mortality, 8.9% vs 23% (RR=0.39, 95% CI 0.73 – 2.95). CPT showed less clinical improvement within 28 days, 53% vs 62% (RR=0.87, 95% 1.8 – 3.08). There was no significant adverse events from CPT

CONCLUSIONS: •CPT was not associated with a significant reduction in 28-day-all-cause mortality. It was associated with a lower rate of clinical improvement. It was well-tolerated by all patients who received it

Presenters: Sydney Madison

TITLE: Impact of Inpatient Order Panels on Direct Oral Anticoagulant Prescribing

AUTHORS: Sydney Madison, Sarah Berardi, Megan Jaynes, Bob Lobo, Colleen Morton

OBJECTIVE: Describe the effectiveness of implementation of clinical decision support on DOAC prescribing patterns.

SELF ASSESSMENT QUESTION: : True or False: DOAC dosing must be adjusted based on patient-specific factors, such as renal function, hepatic function, and indication.

BACKGROUND: Utilization of direct oral anticoagulants (DOACs) has increased dramatically over the last several years. Recommended dosing strategies for DOACs vary greatly depending on indication and other patient-specific factors; as a result, DOAC dosing errors are common, which may be associated with an increased incidence of adverse events. To improve prescribing patterns at our institution, clinical decision support was developed to guide dosing based on patient specific factors. The purpose of this study was to evaluate the effectiveness of this order panel on DOAC prescribing patterns at our institution.

METHODOLOGY: This study was a retrospective chart review and analysis of patients at Vanderbilt University Medical Center. Patients were classified into pre-panel implementation (control) and post- implementation (intervention) groups The primary endpoint of this study was the percentage of patients who were ordered the appropriate DOAC dose for the given indication, renal function, and hepatic function. Secondary outcomes included incidence of stroke, venous thromboembolism, or major bleeding during the index hospitalization.

RESULTS: In progress

CONCLUSIONS: In progress

VIDEO LINK: <https://youtu.be/V9HpktNi4oY>

Presenters: Christine Hanna

TITLE: Impact on 30-day readmissions in patients enrolled in a Meds to Beds Program: a collaboration between a hospital and independent pharmacy

AUTHORS: Christine Barjoud Hanna, Maria M Thurston, Teresa Pounds, Pamela Moye-Dickerson

OBJECTIVE: Evaluate the impact of a Meds to Beds program on 30-day readmissions in high readmission risk patients

SELF ASSESSMENT QUESTION: What is a pharmacist's role in a Meds to Beds Program?

BACKGROUND: Evaluate the impact of a Meds to Beds program on 30-day readmissions in high readmission risk patients

METHODOLOGY: This is a retrospective study designed to compare all-cause 30-day readmission rates in adult patients with CHF, COPD, AMI, or pneumonia who enrolled in a medication bedside delivery program to patients who did not enroll from November 2019 to November 2020. To identify medication-related readmissions, the electronic medical record was reviewed to identify medication therapy problems (MTP) using the Pharmacy Quality Alliance's MTP Categories.

RESULTS: 158 patients enrolled in the Meds to Beds Program during the study period. 58 patients in the Meds to Beds group met inclusion criteria. 129 patients were randomly selected for the control group. Eight patients were readmitted (13.8%) within 30 days from the Meds to Beds group and thirteen patients (10%) from the control group (pvalue = 0.081). Two patients had a medication-related readmission in the Meds to Beds group in the category of adverse drug reaction and adherence, and two patients in the control group in the category of adherence and needs additional medication therapy.

CONCLUSIONS: Previous evidence shows readmissions are higher for patients with the studied disease states and readmission risks are multifactorial. Although our results found there was no difference in all-cause 30-day readmission rates in the studied disease states who enrolled in a medication bedside delivery program to patients who did not enroll, we still believe there is an opportunity for pharmacists to intervene at the point of discharge and conduct medication reconciliations and counseling to better advance transitions of care and reduce hospital readmissions. A randomized control study is warranted to prove the relationship between a Meds to Beds Program and 30-day readmission rates.

Presenters: Lauren Cimino

TITLE: Assessing the Need for Insulin Pump and Continuous Glucose Monitoring (CGM) Education

AUTHORS: Lauren H. Cimino, Melanie Manis, B. DeeAnn Dugan, Stephen A. Brown, Timothy Garrett

OBJECTIVE: At the conclusion of this presentation, the participant will be able to identify the need for future education and training on insulin pumps and continuous glucose monitoring (CGM) systems within Alabama pharmacists.

SELF ASSESSMENT QUESTION: True or False: Most survey participants reported little to no experience with insulin pumps and/or CGMs.

BACKGROUND: In 2018, it was estimated that 34.2 million people of all ages in the United States had diabetes.

Studies have shown that the use of insulin pumps and continuous glucose monitoring (CGM) systems improve glycemic control and reduce the risk for hypoglycemic episodes in both Type 1 and Type 2 diabetics. The use of insulin pumps in Type 1 diabetes patients has drastically increased, as well as CGM use. One study has shown improved glycemic control when pharmacists are involved, but unfortunately there is limited pharmacist education in this area.

METHODOLOGY: This prospective, cross-sectional study used an anonymous, electronic 31-question survey that was distributed via five Alabama organizational listservs. Data collected included practice site, frequency of diabetes management, familiarity with insulin pumps and CGMs, certificate program completion, confidence levels, and assessment questions. Descriptive statistics were used to depict collected data. IRB approval was obtained from Samford University.

RESULTS: Of 466 participants, 352 were eligible to participate (77%), and 291 eligible patients completed the survey (83%). When surveyed about insulin pump and CGM confidence, most selected they do not feel confident in any area. Only 31% of surveyed practice sites have Diabetes Self-Management Education (DSME) accreditation. The vast majority (93-94%) stated they would be interested in completing CE about insulin pumps and CGMs. Participants would prefer a webinar or certificate-based program for education.

CONCLUSIONS: As insulin pumps and CGMs become more common in patients with type 1 and type 2 diabetes mellitus, many Alabama pharmacists have expressed the need and desire for further education with these devices. Next steps include the development of a webinar or certificate-based program to meet this need.

<https://samford.instructuremedia.com/embed/4ea2203f-b472-4a1e-afcf-637eb07d18a5>

TREATMENT IN A VETERAN POPULATION

Presenters: Courtney Lee

TITLE: EVALUATION OF OUTPATIENT PROVIDER MONITORING FOR ALCOHOL USE DISORDER (AUD)

TREATMENT IN A VETERAN POPULATION

AUTHORS: Courtney Lee, Lizmarie Aviles-Gonzalez

OBJECTIVE: Identify appropriate outpatient monitoring and pharmacotherapy for Alcohol Use Disorder (AUD).

SELF ASSESSMENT QUESTION: Is there a potential role for pharmacists as outpatient providers for patients with AUD on pharmacotherapy based on results of this project?

BACKGROUND: Evaluate outpatient provider monitoring for patients diagnosed with Alcohol Use Disorder (AUD) in a veteran population to compare medication monitoring and treatment progress among non-pharmacist and pharmacist outpatient providers.

METHODOLOGY: Eligible participants were those diagnosed with AUD currently on pharmacotherapy and being followed by an outpatient provider from 01/01/2020 to 12/31/2020. Patients were identified through the Veteran's Affairs AUD dashboard for pharmacotherapy monitoring, and patients monitored by a pharmacist-led outpatient AUD pilot program in the Primary Care setting. A chart review was conducted to assess baseline AUDIT-C score, changes in alcohol intake, adherence, dose adjustments, and adverse drug reactions related to gabapentin, naltrexone, acamprosate, disulfiram, and topiramate. Data was reviewed through means of pre-data for patients with non-pharmacist providers and post-data including patients with a pharmacist as the outpatient provider to determine differences in appropriateness of AUD therapy monitoring and treatment progress among patients with different providers.

RESULTS: Research completion yielded a total of 20 patients for pre-data results and 1 patient total for post-data results in the quality improvement project. Most frequent pharmacotherapy used was naltrexone mostly prescribed by the Mental Health service line.

CONCLUSIONS: Changes in alcohol intake and adherence were not addressed in several patients in the pre-data results. More post-data is needed for future comparison of outpatient providers and relation to treatment progress. There may be a role for pharmacists as outpatient providers for AUD monitoring in veteran populations.

Link to presentation stream: <https://vimeo.com/539195965>

C TIMing Evaluation of the Initiation of Thiazide-type diuretics (TIME-IT) for sequential nephron blockade

Room D

Presenters: Andrew Johnson

TITLE: TIMing Evaluation of the Initiation of Thiazide-type diuretics (TIME-IT) for sequential nephron blockade

AUTHORS: Andrew Johnson, Kayla Nichols, Stuart Hurst

OBJECTIVE: Evaluate the difference in 6-hour urine output when thiazide-type diuretics are administered prior to versus concurrently with intravenous loop diuretics.

SELF ASSESSMENT QUESTION: Is there a difference in 6-hour urine output when thiazide-type diuretics are administered ≥ 25 minutes versus < 25 minutes prior to loop diuretics?

BACKGROUND: Sequential nephron blockade combats loop diuretic resistance. Administration of the thiazide-type diuretic 30 minutes before the loop diuretic theoretically optimizes the agents' pharmacokinetic relationship. However, evidence detailing safety and efficacy regarding this timing strategy is lacking. This study evaluated the optimal temporal relationship of thiazide-type and loop diuretic administration in the implementation of sequential nephron blockade.

METHODS: This was a single-center retrospective crossover study evaluating patients hospitalized with acute decompensated heart failure, categorized as loop diuretic resistant, and administered sequential nephron blockade at least twice. Each patient received a thiazide-type diuretic ≥ 25 minutes and < 25 minutes prior to an intravenous loop diuretic. The primary outcome was to compare 6-hour total urine output between each timing strategy. Secondary outcomes were to compare 6-hour total urine output in patients receiving exclusively metolazone or chlorothiazide, 6-hour hourly urine output, hypokalemia, hypomagnesemia, hyponatremia, and hypotension between each timing strategy.RESULTS: Seventy-nine patients were included. Six-hour total urine output when the thiazide-type diuretic was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic was 1,381.8mL versus 1,309.9mL, respectively ($p=0.38$). In metolazone-treated patients, 6-hour total urine output when metolazone was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic was 1,929mL versus 897.5mL, respectively ($p=0.13$). There were no differences in 6-hour hourly urine output or safety outcomes.CONCLUSIONS: There were no significant differences in 6-hour urine output when the thiazide-type diuretic was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic. A numerically larger but non-statistically significant 6-hour urine output difference between groups was demonstrated in patients receiving exclusively metolazone.<https://youtu.be/vG7PpeAAXGQ>**R Dexmedetomidine to facilitate successful extubation in agitated mechanically ventilated patients**

Room C

Presenters: Jenna Sorgenfrei

TITLE: Dexmedetomidine to facilitate successful extubation in agitated mechanically ventilated patients

AUTHORS: Jenna Sorgenfrei, Kristin Welborn, Alex Ewing, Michael Wagner

OBJECTIVE: Determine if dexmedetomidine helps facilitate extubation in agitated mechanically ventilated patients

SELF ASSESSMENT QUESTION: What is the most common adverse effect of dexmedetomidine?

BACKGROUND: Agitation and delirium are common consequences that lead to poorer outcomes in the intensive care unit (ICU). In patients with delirious agitation, weaning sedatives to facilitate extubation is inversely complicated by increasing agitation, making extubation unsafe or unsuccessful. Dexmedetomidine is potentially advantageous as it provides a bridge to extubation while avoiding increasing agitation, but there is limited evidence supporting its effectiveness.

METHODOLOGY: A single-center institutional review board-approved retrospective chart review was conducted on agitated ventilated ICU patients receiving the ICU sedation protocol with or without the use of dexmedetomidine in the 24 hours leading up to extubation between August 2017 and September 2020. The primary outcome was ventilator free hours in the 7 days after first extubation attempt. Secondary outcomes included hospital and ICU length of stay, ICU mortality, and incidence of bradycardia or hypotension.

RESULTS: A total of 200 patients were included, with 100 in the dexmedetomidine group and 100 in the control group. Average ventilator free hours in dexmedetomidine and control group were 153 and 139 hours, respectively ($p = 0.058$). There was a significantly longer ICU length of stay ($p = 0.004$) and hospital length of stay ($p = 0.007$) in the dexmedetomidine group, with no difference in ICU mortality ($p = 1.0$).

CONCLUSIONS: There was no significant difference in ventilator free hours when dexmedetomidine was added to the ICU sedation protocol, and patients in the dexmedetomidine group had a significantly longer ICU and hospital length of stay as compared to the control group. However, a large prospective trial is still needed to determine if there is any utility in dexmedetomidine use in ventilated patients with delirious agitation.

PRESENTATION: https://youtu.be/L7mtfVrO_b8

Presenters: Taylor Odom

TITLE: Perception of pediatric and neonatal emergency preparedness across a community hospital health system

AUTHORS: Taylor Odom, PharmD; Amanda Williams, PharmD, BCPS, BCPPS; Elizabeth Ezell, PharmD; Nichole Moore, PharmD

OBJECTIVE: This study is conducted to increase the ability of healthcare providers to provide neonatal and pediatric care in emergency situations by providing education regarding the processes of effectively preparing and administering medications to infants and children.

SELF ASSESSMENT QUESTION: What is the difference in the confidence of healthcare providers before and after education is provided regarding the preparation and administration of medications to pediatric and neonatal patients during cardiopulmonary resuscitation?

BACKGROUND: Providers in health systems that predominantly treat adult patients are often less familiar with the orientation of pediatric emergency kits and neonatal crash carts, which can lead to a delay in the initiation of care, as well as increase the risk of medication administration mistakes. This study is conducted to increase the ability of healthcare providers to provide neonatal and pediatric care in emergency situations by providing education regarding the processes of effectively preparing and administering medications to infants and children.

METHODOLOGY: Nurses, providers, and pharmacists who primarily prepare and administer emergency medications used in pediatric emergency kits and neonatal crash carts were identified for the survey. Survey results will be anonymously submitted. Healthcare provider's perception of the health system's emergency preparedness will be determined, as well as gaps in knowledge regarding crash cart orientation and emergency medication dosing, based on these survey results. Education will then be provided through the completion of an online video module. Healthcare providers will be re-surveyed after participation in the education simulation to assess improvement in their ability to efficiently, safely, and effectively provide emergency care to pediatric and neonatal patients.

RESULTS: In process

CONCLUSIONS: In process

I Comparing outcomes of MRSA-related infections treated with vancomycin when utilizing a one level only calculator targeting AUC compared to targeting higher troughs alone.

Presenters: Caroline Hansford

TITLE: Comparing outcomes of MRSA-related infections treated with vancomycin when utilizing a one level only calculator targeting AUC compared to targeting higher troughs alone.

AUTHORS: Caroline Hansford, Tiffany Goolsby

OBJECTIVE: At the conclusion of my presentation, the participant will be able to evaluate therapeutic failure and acute kidney injury in patients with MRSA infections on vancomycin that were dosed based on the new AUC goals utilizing a single level calculator compared to those dosed based on higher trough goals prior to guideline changes

SELF ASSESSMENT QUESTION: True or False. It is recommended to target AUC/MIC for all indications when dosing Vancomycin.

BACKGROUND: In 2020, guidelines on vancomycin dosing were updated recommending AUC targets over troughs due to decreased nephrotoxicity without compromising efficacy. Overtime, AUC pharmacokinetic equations have been simplified and the guidelines recommend using two levels to determine AUC. In clinical practice, our institution began utilizing a single level steady state calculator to determine AUC in 2019. Our study assessed vancomycin dosing and compared the rates of treatment failure and Acute Kidney Injury (AKI) in patients being treated with vancomycin for MRSA-related infections, with targeting an AUC/MIC 400-600 and troughs of 10-20 mcg/dL with a trough-only based calculator compared to targeting a trough of 15-20 mcg/dL only.

METHODOLOGY: retrospective chart review was performed on patients at the AVAMC who were initiated on vancomycin for a documented MRSA-related infection and achieved a steady-state level before January 2019 (pre-guideline change) and January 2019 and beyond (post-guideline change) to assess treatment failure, AKI, trough and AUC. AUC was calculated based on the first steady state trough level utilizing the trough-only AUC calculator on vancopk.com.

RESULTS: Overall, there were no treatment failures documented in either group. However, there were 4 deaths in the pre-intervention group vs the post intervention group. The rates of AKI were 7/100 (7%) in the pre-intervention group vs 4/53 (8%) in the post intervention group. The average steady-state trough and AUC was 16 vs 10.8 mg/dL and AUC 803 vs 429 in the pre-intervention and post intervention group respectively. A secondary analysis was performed to fully evaluate our primary and secondary outcomes. We found that in patients that developed AKIs in our pre-intervention group 86% were also on concomitant therapy with piperacillin/tazobactam, and the average subsequent trough calculated was 13.2 mcg/dL. In those that developed AKI in the post-intervention group 75% were on concomitant therapy with piperacillin/tazobactam, and the average subsequent trough calculated was 14.7 mcg/dL.

CONCLUSIONS: Targeting AUC with a vancomycin trough only calculator versus targeting higher vancomycin trough goals was not associated with increased treatment failure or a significant difference in AKI at our institution. We did observe a lower average trough and AUC compared to trough-only dosing, but our results did not demonstrate AUC monitoring was associated less AKI. The lack of difference in AKI may have been confounded by co-administration with piperacillin/tazobactam as well as our small sample size, and further investigation is needed.

https://static.sched.com/hosted_files/2021southeasternresidency/ed/Hansford.mp4

I The Impact of Select Medication Classes Taken Prior to Hospital Admission on Mortality and Morbidity in COVID-19 Patients

Presenters: Danielle Casaus

TITLE: The Impact of Select Medication Classes Taken Prior to Hospital Admission on Mortality and Morbidity in COVID-19 Patients

AUTHORS: Danielle Casaus, John Boreyko, Rachel Toler, Julie Thompson, Andrew Darkow

OBJECTIVE: Identify whether select medication classes taken prior to hospital admission are associated with a difference in mortality and morbidity in COVID-19 patients.

SELF ASSESSMENT QUESTION: Did any of the select medication classes have an associated difference in regards to mortality or morbidity in COVID-19 patients?

BACKGROUND: Since the beginning of the Novel Coronavirus 2019 (COVID-19) pandemic, many theories have been generated on the impact several medication classes may have on COVID-19 infections. These classes include both prescription and over-the-counter medications taken in an outpatient setting.

METHODOLOGY: This study was a multi-center, retrospective, observational case-control study within an academic health system that included patients 18 years of age or older with a positive inpatient COVID-19 polymerase chain reaction (PCR) between March 15, 2020 and September 30, 2020. The medication classes evaluated in this study included: angiotensin converting enzyme (ACE) inhibitors/angiotensin receptor blockers, histamine 2 receptor antagonists (H2RAs), proton pump inhibitors, melatonin, anticoagulants, and antiplatelet agents. Patients were categorized based on whether they were taking a medication from each class prior to their hospital admission, with each medication class evaluated separately. The primary endpoint was the difference in hospital mortality between each group. Secondary endpoints included need for intensive care unit admission, hospitalization for greater than 8 days, and need for 6 or more liters of oxygen during hospitalization.

RESULTS: ACE inhibitors were the only medication class that met statistical significance for increased hospital mortality, ICU admissions, and need for 6 or more liters of oxygen. None of the studied medication classes were significant for hospitalization for greater than 8 days. ACE inhibitors were evaluated using a regression model, which only found a statistically significant difference in increased ICU admissions and need for 6 or more liters of oxygen.

CONCLUSIONS: Based on our results, ACE inhibitors may negatively impact mortality and morbidity in COVID19 patients.

L Evaluation of dexamethasone use in patients with diabetes for postoperative nausea and vomiting (PONV)

Room E

Presenters: Haley Hubbard

TITLE: Evaluation of dexamethasone use in patients with diabetes for postoperative nausea and vomiting (PONV)

Link of visual presentation (if needed): <https://vimeo.com/538968896>

AUTHORS: Haley Hubbard, PharmD; Lauren Whitfield, PharmD; AR Campbell, PharmD, BCPS, Stephanie Smith, PharmD, BCCCP, Sara Velky PA-C, Katherine Johnson, MD

OBJECTIVE: Evaluate the use of dexamethasone in patients with diabetes, effects on glycemic control within a 24-hour postoperative period, and its impact on length of stay.

SELF ASSESSMENT QUESTION: What is the hypothesized mechanism of action of the anti-emetic effect of dexamethasone?

BACKGROUND: The underlying mechanisms of hyperglycemia in a postoperative setting and its relationship to poor outcomes is not completely understood. Corticosteroids are inherently associated with hyperglycemia and per the 2014 Anesthesiology guidelines for the management of PONV, dexamethasone is used as an alternative and adjunct agent to ondansetron. Data may also support the use of dexamethasone in a perioperative setting for the following benefits: reduction of opioid consumption and surgery-related inflammation.

METHODOLOGY: A retrospective chart review will be conducted on patients with diabetes who received at least one dose of dexamethasone, ondansetron, or both. Data will be collected through an EPIC-generated report that includes patients with diabetes (Type 1 and Type 2), who are ≥ 18 years of age, admitted to the surgical floors of a 322-bed hospital, received a dose of dexamethasone, ondansetron, or both for PONV. Patients will be excluded if they underwent an emergent cardiovascular-related or standard neurological-related surgical procedure, were SARS-CoV-2 positive while undergoing the procedure, part of a vulnerable population, had a current infection, or received steroids chronically. The drug, dose, time of administration, and blood glucose levels will be collected using the EMR. The primary outcome measure is to determine the relationship between the dose of dexamethasone administered and subsequent increase in blood glucose levels. Secondary outcomes will include length of stay, achievement of glycemic control as recommended by the SCIP guidelines as < 180 mg/dL or > 200 mg/dL within the first 24-hours after surgery, type of surgical procedure, occurrence of PONV, type of anesthesia used at induction, amount of corrective insulin used, postoperative opioid use and pain management, surgical-site infections, and its overall effect on patient's quality of care.RESULTS: Total of 106 patients included in the retrospective chart review. Dexamethasone + ondansetron (n=59) vs. ondansetron monotherapy (n=47) showed no significant difference between the two groups for the occurrences of a BGL > 180 mg/dL 24-hours of the surgical procedure. Secondary outcomes were not significantly different with length of stay, opioid consumption, and insulin use. There was no documented occurrences of surgical site infections or PONV with either therapy.

CONCLUSIONS: Patients who received dexamethasone + ondansetron at induction of anesthesia had a shorter length of stay when compared to those who just received ondansetron – especially in the orthopedic surgeries and some abdominal surgeries. A total of 106 patients were evaluated, there was no statistical significance in the study's primary or secondary outcomes between the two groups of patients.

P The pharmacist's role in the development of a long-acting injectable antipsychotic clinic at a Veterans Affairs Medical Center

Room G

Presenters: Amber Brewer

TITLE: The pharmacist's role in the development of a long-acting injectable antipsychotic clinic at a Veterans Affairs Medical Center

AUTHORS: T. Amber Brewer; Brooke Butler; Meredith Blalock.

OBJECTIVE: Define the role a pharmacist can have in a long-acting injectable antipsychotic clinic.

SELF ASSESSMENT QUESTION: What is the recommended timeframe for conducting AIMS assessments in patients at high risk for movement adverse effects?

BACKGROUND: The use of long-acting injectable antipsychotics (LAIAs) is associated with increased medication adherence and reduced relapse rates in patients with mental health disorders. However, LAIAs require frequent monitoring and may contribute to metabolic and movement disturbances. The psychiatric pharmacist is trained to monitor LAIAs. Currently, there is no formal process to monitor Veterans receiving long-acting injectable antipsychotics (LAIs) our VA Medical Center or its associated clinics. At the start of the study 38 veterans were prescribed an LAIA. Of these, 7 (18.4%) were overdue for metabolic labs and 25 (65.8%) were overdue for Abnormal Involuntary Movement Scale (AIMS) and waist circumference assessments at the beginning of this project. The goals of this project are to establish a psychiatric pharmacist-led LAIA clinic, streamline the monitoring and ordering process for LAIAs, and improve to improve treatment outcomes for patients receiving LAIAs.

METHODOLOGY: An initial chart review was conducted in September 2020 to determine the total number of veterans receiving an LAIA, adherence rates, and assess monitoring compliance per institutional policy. A proposal outlining the purpose, methods, and timeline of introducing a pharmacist-led LAIA outpatient clinic was presented by the lead investigator and approved by the Pharmacist and Therapeutics Committee. Individual chart reviews were completed on all patients prescribed a long-acting injectable antipsychotic to document monitoring. Prescribing provider and nursing were tagged on notes to alert to actionable patient. Pharmacist worked with nursing to coordinate lab draws, AIMS assessments, and vital sign collections. The intervention period was 7 months, during which the goal was to increase the following by at least 20%: Metabolic laboratory monitoring, Abnormal Involuntary Movement Screenings (AIMS), waist circumference assessments, and vital signs.

RESULTS: Currently as of April 2021, there are 45 patients receiving LAIAs at the Dublin VAMC. Of these, 5 (11.1%) were overdue for metabolic labs, 8 (17.8%) were overdue for Abnormal Involuntary Movement Scale (AIMS) and 17 (37.8%) were overdue for waist circumference assessments.

CONCLUSIONS: The mental health pharmacist can play an important role in a long-acting injectable antipsychotic clinic.

T Impact of Transitional Care and Pharmacy Interventions for Patients Receiving Rifaximin at a Large Academic Medical Center

Room A

Presenters: Mary Pat Holder

TITLE: Impact of Transitional Care and Pharmacy Interventions for Patients Receiving Rifaximin at a Large Academic Medical Center

AUTHORS: Mary Pat Holder, Ginny Tyler Meadows, DeAnn Jones, Steven Lawley, Meagan Fowler

OBJECTIVE: Discuss ways to improve patient care and reduce readmissions for those receiving specialty medications through transitional care at UAB.

SELF ASSESSMENT QUESTION: From the findings of this study, what are ways transitional care services can benefit patients requiring specialty medications?

BACKGROUND: Transitional care has become an important aspect of providing safe, quality, and efficient healthcare to patients. Without appropriate coordination, the transition from inpatient to outpatient setting may result in medication errors or adherence issues. Rifaximin is commonly initiated while inpatient with the intent to continue treatment at discharge. The nature and specialty classification of rifaximin often leads to problems with insurance approval, prescription affordability, dispensing delays, compliance, and acute worsening of disease.

METHODOLOGY: This study included a prospective observation of patients prescribed rifaximin over a 3-month time frame utilizing a new electronic order set encouraging use of onsite specialty pharmacy for benefits investigation, as well as a retrospective chart review over 12 months as the comparator group. The primary objective was to determine the time to fill the medication from the outpatient pharmacy prior to discharge. The secondary objectives evaluated adherence, readmissions due to HE in a 3-month time period, and cost saving opportunities.

RESULTS: Of the 131 patients included, 69 were retrospective review patients and 62 were prospective review patients. A total of 66 patients (50%) appropriately filled the prescription post-discharge with an average time to fill of 6 days. Medication adherence from initial fill date included 17 of 69 patients (25%) in the retrospective group and 19 of 62 patients (31%) in the prospective group. Readmissions included 45 of 131 patients (34%) within 3 months.

CONCLUSIONS: While not statistically significant, incorporation of the new electronic order set within the prospective group may have improved time to fill for rifaximin. Readmission rates remained similar between retrospective and prospective groups. Given this data, patient outcomes may improve with coordinated management between inpatient and outpatient teams.

AUDIOVISUAL PRESENTATION: <https://youtu.be/peAph3UAHYw>

Presenters: Rachel Stogner

TITLE: Improving Medical Center Compliance with Dose Error Reduction System (DERS)

AUTHORS: Rachel Stogner, PharmD, Anne Parnell, PharmD, MBA, BCPS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify the appropriate DERS compliance rate as recommended by the Institute for Safe Medication Practices.

SELF ASSESSMENT QUESTION: Which of the following is the appropriate DERS compliance rate as recommended by the Institute for Safe Medication Practices?

BACKGROUND: In FY20, Ralph H. Johnson VA Medical Center was 79.8% compliant with Alaris Guardrails, our local dose error reduction system, and did not meet ISMP compliance standards (recommended >95% compliance). Under-compliance with dose error reduction systems like Guardrails can lead to medication errors that significantly impact patient safety. The purpose of this quality improvement project is to increase facility compliance rate with Alaris Pump Guardrails from 79.8% to >90% by February 31, 2020.

METHODOLOGY: Any fluid or medication administered via Alaris Pump will be evaluated for compliance with Alaris Guardrails. In order to increase facility compliance, several interventions will be made:

- Provide training at nursing huddles and staff meetings to address knowledge gaps related to Alaris Guardrails
- Review Alaris Pump Guardrails drug library and update library entries to promote use and decrease barriers
- Distribute educational posters promoting the use of Alaris Guardrails on units throughout medical center
- Complete compliance checks in real-time to identify and address barriers to use for nursing staff
- Review of facility compliance data for 3 months at baseline and then on a monthly basis during the intervention period to determine impact on compliance with Alaris Guardrails

RESULTS: Average facility compliance with Alaris Guardrails DERS increased by 4% with focused nursing education interventions

CONCLUSIONS:

- Regular nursing training and education is essential to maintaining competency of all clinical staff related to the use of dose error reduction systems
 - Interprofessional collaboration between pharmacy and nursing services is optimal in promoting the use of dose error reduction systems as an expected practice
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Presenters: Kenicia Walker

TITLE: Use of Pharmacist Telehealth Visits During the COVID-19 Pandemic and Going Forward

AUTHORS: Kenicia Walker, Elizabeth Oldham, Andrew Hwang, Danielle Baker, Beth Williams, Lauren Alderman

OBJECTIVE: Describe the impact of telehealth visits in patients with chronic disease states pre and post implementation of telehealth services.

SELF ASSESSMENT QUESTION: Telehealth visits have been demonstrated to be impactful for what specific patient outcomes?

BACKGROUND: Current literature supports the use of pharmacist services provided via telehealth to improve medication adherence and to decrease travel-time for patients living in rural areas or in the veteran population.

Additional research is needed to better assess the impact of these virtual visits on patient outcomes and access to care in a broad patient population. The coronavirus disease-19 (COVID-19) pandemic has greatly altered our society and healthcare system. This crisis has made necessary a rapid adoption of telehealth to deliver patient care at a safe distance.

METHODOLOGY: A single-center retrospective chart review for patients managed by pharmacists in an ambulatory clinic setting between September 2019 and September 2020. Patients will be included if they are ≥ 18 years of age with at least 1 office visit during the months of September 2019- February 2020 (pre-telehealth implementation) and at least 1 documented telehealth visit during the months of April 2020-September 2020 (post-telehealth implementation), have diabetes, hypertension, dyslipidemia, chronic lung disease, or tobacco cessation. Excluded patients were those whom were previously managed electronically or by phone having ≥ 2 visits in a 4 week period within the designated pre-telehealth period. Each patient will serve as their own control for statistical analysis and comparison of the endpoints. The primary outcome is change in frequency of telehealth visits vs face-to-face visits. Secondary outcomes include: mean change in A1C, patient satisfaction, pharmacist satisfaction, percentage of patients meeting American Diabetes Association- A1c goal of $< 7\%$ for diabetes, frequency of hospitalizations and ED visits related to chronic condition(s), and the travel distance from patient home to clinic.

RESULTS: In progress.

CONCLUSIONS: In progress.

Presenters: Amanda Hammond

TITLE: Adjunctive Phenobarbital in the Treatment of Severe Alcohol Withdrawal

AUTHORS: Amanda Hammond Patrick Filkins Joe Carpenter Lindsay Rothstein Sara Miller Ted Walton Marina Rabinovich

OBJECTIVE: List potential benefits of phenobarbital as an adjunctive therapy in alcohol withdrawal syndrome.

SELF ASSESSMENT QUESTION: In which patient population might the continued study of phenobarbital show benefit in regard to efficacy and safety?

BACKGROUND: To evaluate clinical and safety outcomes of patients who received phenobarbital adjunctive to benzodiazepines (BZD) for severe alcohol withdrawal syndrome (AWS).

METHODOLOGY: Single-center, retrospective, medical record review at Grady Hospital from January, 2010 through June, 2020 of adults admitted with severe AWS. Patients were included if they were assessed and treated per hospital-specific Grady Alcohol Withdrawal Assessment Scale (GAWAS) and BZD protocol. Protected populations, mild to moderate AWS, previously enrolled patients were excluded. Patients who received phenobarbital in addition to BZD were compared to patients who did not receive phenobarbital at any time during treatment. The primary outcome was mean BZD amount (measured in lorazepam equivalents) administered per patient per day. Secondary outcomes included hospital and ICU length of stay, duration of treatment, total phenobarbital dose, and percentage of patients requiring intubation, experiencing seizures, and receiving rescue therapies.

RESULTS: 141 patients were evaluated. Ninety-five patients met exclusion criteria and 46 patients were included, 19 in phenobarbital group and 27 in non-phenobarbital group. There were no significant differences between the groups with regards to baseline demographics. Patients in non-phenobarbital group received lower total (103mg vs. 134.5mg, $p=0.53$), symptom-triggered (11.3mg vs. 12.7mg, $p=0.24$), and infusion-based (40.3mg vs. 51.4mg, 0.38) amounts of BZD. Hospital and ICU length of stay was lower in non-phenobarbital group (5.2 vs 7.2, $p=0.22$ and 8.4 vs 11.2, $p=0.31$). Use of rescue therapies, intubation, and seizures occurred at a non-significantly higher rate in BZD/phenobarbital group.

CONCLUSIONS: No significant differences were seen between treatment groups. Therefore, it is possible that there is not significant benefit from the use of phenobarbital as an adjunctive to BZD treatment for alcohol withdrawal.

PRESENTATION: <https://drive.google.com/file/d/1uicHREGzfkPmRNqoMbkq9QQjoyLhmgJ-/view?usp=sharing>

R Evaluation of a pharmacist-led, high-risk medication consultation service for geriatric trauma patients at a level-1 trauma center

Room C

Presenters: Corey Bray

TITLE: Evaluation of a pharmacist-led, high-risk medication consultation service for geriatric trauma patients at a level-1 trauma center

AUTHORS: Corey Bray, Breanna Carter, Emily Garrett, Amanda Torbett, Lacie Bradford, Darren Hunt

OBJECTIVE: Evaluate pharmacist impact on high-risk medication use in geriatric trauma patients

SELF ASSESSMENT QUESTION: Do pharmacists positively impact the number of high-risk medications from admission to discharge?

BACKGROUND: Medication reconciliation and avoiding high-risk medications are important approaches to improve patient safety outcomes in the geriatric trauma population. Physiologic changes in geriatric patients, communication barriers, and polypharmacy create challenges obtaining an accurate medication history and may lead to adverse drug events. Pharmacists can help prevent adverse drug events through completing medication reconciliation and making targeted interventions on high-risk medications in geriatric patients. This study evaluates the impact of pharmacist services on the utilization of potentially inappropriate medications in geriatric trauma patients.

METHODOLOGY: This study includes patients 65 years or older admitted to the trauma service at the study institution. The pre-intervention group includes patients from September 2019 through February 2020 and the intervention group includes patients admitted after September 1, 2020. The pharmacist will attempt medication reconciliation completion within 72 hours of admission and document medication recommendations. Patients who are prescribed a high-risk medication at home will receive a letter to their primary care provider in the discharge documentation requesting review of potentially inappropriate medications and alternatives. The pharmacist will follow up 30 days post-discharge to assess acceptance of recommendations. Trauma Surgery providers were surveyed prior to implementation, educated on high-risk medication use in geriatric patients, and will be resurveyed prior to study completion to assess the impact of pharmacist services. The primary outcome is the number of potentially inappropriate medications identified on admission and discharge including anticholinergics, antiemetics, tricyclic antidepressants, sedative/hypnotics, and skeletal muscle relaxants. Secondary outcomes include acceptance of pharmacist recommendations during admission and follow-up, hospital and ICU length of stay, 30-day readmission rate, time to medication reconciliation completion, number of medication reconciliations completed, number of admission and discharge medications, and complications during admission.

RESULTS: In progress

CONCLUSIONS: In progress

<https://youtu.be/7GYmbSFDRre>

R INCIDENCE OF FLUID DE-RESUSCITATION IN SEPTIC SHOCK PATIENTS WHO RECEIVE FLUID BOLUS ALONE VERSUS FLUID BOLUS PLUS MAINTENANCE FLUIDS

Room B

Presenters: Stephen McCall

TITLE: INCIDENCE OF FLUID DE-RESUSCITATION IN SEPTIC SHOCK PATIENTS WHO RECEIVE FLUID BOLUS ALONE VERSUS FLUID BOLUS PLUS MAINTENANCE FLUIDS

AUTHORS: Stephen McCall, Joseph Crosby, Sabrina Croft

OBJECTIVE: Describe results of our retrospective review and identify implications of conservative fluid management compared to maintenance fluids in patient care.

SELF ASSESSMENT QUESTION: What is one potential benefit to conservative fluid management after initial resuscitation in patients with septic shock?

BACKGROUND: Following initial fluid resuscitation, guideline recommendations for further fluid management in patients with sepsis and septic shock have minimal support in the literature to guide clinicians and are contingent upon frequent hemodynamic assessment as best practice. Our aim is to determine potential difference in incidence of need for mechanical or chemical diuresis between patients who receive fluid boluses alone compared to fluid bolus plus maintenance fluids.

METHODOLOGY: Patients 18 years or older were included in this retrospective, observational, chart review based on admission to one of the intensive care units at St. Joseph's or Candler Hospital and diagnosed with septic shock between January 1, 2016 and December 31, 2019. The health system's software was used to identify patients with this diagnosis and received bolus fluids with or without maintenance fluids. Patients included also had additional information gathered including comorbid disease states, admission date, and 30-day mortality.

RESULTS: 107 total patients were included in the IRB-approved study; 26 were in the bolus alone group, and 81 were in the bolus plus maintenance fluids group. Incidence of chemical diuresis in the bolus alone group versus bolus and maintenance fluids group was 34.6% compared to 58.0%, respectively; incidence of mechanical diuresis in the bolus alone group versus bolus and maintenance fluids group was 7.7% compared to 16.0%, respectively. Total fluids, time in ICU, and hospital length of stay were lower in the bolus alone group. There was no difference in mortality.

CONCLUSIONS: Results indicate that boluses of fluids alone result in a statistically significant decreased incidence of chemical and mechanical diuresis utilized, along with shorter hospital length of stay compared to bolus plus maintenance fluids. There was no difference between the groups regarding time on mechanical ventilation or 30-day mortality. Further analysis limited by power; multivariate analysis pending.

<https://youtu.be/RPqj0olfNNY>

I DOXYCYCLINE AND CEFTRIAXONE VERSUS AZITHROMYCIN AND CEFTRIAXONE FOR CRITICALLY ILL PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA: A RETROSPECTIVE COHORT

Room I

Presenters: Nathan Fields

TITLE: DOXYCYCLINE AND CEFTRIAXONE VERSUS AZITHROMYCIN AND CEFTRIAXONE FOR CRITICALLY ILL PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA: A RETROSPECTIVE COHORT

AUTHORS: Nathan Fields, Julia Pate, Benjamin Casey

OBJECTIVE: Examine the role of doxycycline for severe inpatient community acquired pneumonia.

SELF ASSESSMENT QUESTION: What are the benefits of atypical microbiological coverage with doxycycline compared to other agents?

BACKGROUND: Community acquired pneumonia (CAP) is a significant contributor to morbidity and mortality in the United States with an estimated 1.3 million emergency department visits and 50,000 deaths annually. The mainstay of treatment for severe, inpatient CAP is ceftriaxone plus azithromycin, although the use of azithromycin may be associated with adverse cardiovascular outcomes in critically ill patients. On the other hand, doxycycline, an alternative treatment option recommended by the guidelines for non-severe CAP, does not carry the same cardiovascular risks. However, its role in severe CAP has not been established. The role of this study is to investigate the role of doxycycline plus ceftriaxone in critically ill patients with severe CAP.

METHODOLOGY: In this retrospective chart review, ceftriaxone plus azithromycin (CTX+AZM) was compared to ceftriaxone plus doxycycline (CTX+DOXY) in critically ill adults with severe CAP. Eligible participants were between the ages of 18 and 89, admitted to an ICU for at least 48 hours, and treated with CTX+AZM or CTX+DOXY for radiographically confirmed pneumonia for at least 48 hours.

RESULTS: A total of 328 patients were reviewed for inclusion and only 62 patients met the predetermined inclusion criteria: 13 in the CTX+DOXY group and 49 in the CTX+AZM group. No difference was observed between the treatment groups for the primary composite endpoint of inpatient mortality and adverse cardiovascular events (CTX+DOXY: 30.8%, CTX+AZM: 32.7%, 95% CI 0.28-3.17). Additionally, there were no statistical differences in ICU length of stay or hospital length of stay.

CONCLUSIONS: CTX+DOXY was not associated with statistically different mortality or cardiovascular outcomes compared to CTX+AZM. Larger randomized trials are needed to assess the role of doxycycline relative to azithromycin for the treatment of critically ill inpatients with CAP.

Recorded presentation link: <https://www.youtube.com/watch?v=1ffQKaDVm3M>

I INITIATIVE TO DECREASE OVERPRESCRIBING OF ANTIBIOTICS FOR PROPHYLAXIS AND TREATMENT OF DENTAL RELATED INFECTIONS

Room H

Presenters: Makenzie Benton

TITLE: INITIATIVE TO DECREASE OVERPRESCRIBING OF ANTIBIOTICS FOR PROPHYLAXIS AND TREATMENT OF DENTAL RELATED INFECTIONS

AUTHORS: Makenzie Benton, Caitlyn Ocampo, Brian Leith, Amanda Karels

OBJECTIVE: Demonstrate the impact of education and order set development on prescribing rates of antibiotics within the FVA dental department.

SELF ASSESSMENT QUESTION: What is one consequence of prescribing antibiotics for prophylaxis during routine dental procedures?

BACKGROUND: Provide dental staff with education and updated medication order-sets needed to appropriately prescribe antibiotic regimens. Through these implementations, it is anticipated to decrease overprescribing of antibiotics and lessen unnecessary exposure, all while combating drug resistance.

METHODOLOGY: This project was conducted as a single center, prospective cohort analysis. Data reports for August, September and October of 2019 were pulled from VA records to reflect total number of dental encounters and prescribed antibiotics at FVA. During August 2020, dental staff were educated via PowerPoint presentation by the first-year pharmacy resident and antimicrobial stewardship clinical pharmacist. Additionally, a new order-set was implemented into the medication ordering system, to assist providers with appropriate antibiotic selections. Identical data reports were later obtained for September and October of 2020, to assess for change in prescribing rates. Only five, seven, and 10-day prescriptions were included for treatment related data, to allow for a more noticeable comparison. No exclusions were applied to prophylactic antibiotic prescriptions.

RESULTS: Data from August, September and October of 2019, consisted of 4,052 dental encounters, which included 237 prophylaxis prescriptions (5.8%) and 134 treatment prescriptions (3.3%). In comparison, September and October of 2020 had a total of 2,373 dental encounters, including 84 (3.5%) prophylactic prescriptions, and 80 (3.4%) treatment prescriptions. A decrease of 2.3% was seen with overall prescribing rates (9.2% to 6.9%).

CONCLUSIONS: Through implementation of new order-set menus and education of dental staff, overall prescribing of antibiotics was decreased, and antibiotic treatment duration was lessened.

Video Presentation: <https://youtu.be/v5Pj9dk4b-g>

I RISK OF SECONDARY INFECTIONS IN CRITICALLY ILL COVID POSITIVE PATIENTS: A RETROSPECTIVE STUDY

Room J

Presenters: Ca Truong

TITLE: RISK OF SECONDARY INFECTIONS IN CRITICALLY ILL COVID-19 POSITIVE PATIENTS: A RETROSPECTIVE STUDY

AUTHORS: Ca Truong, Jana Mills, Brook Jacobs

OBJECTIVE: Estimate the incidence of secondary infections in patients with COVID-19.

SELF ASSESSMENT QUESTION: Identify predominant organisms and risk factors leading to secondary infections in ICU COVID-19 patients.

BACKGROUND: Severe COVID-19 is associated with intensive care unit (ICU) admission. Historically, increased secondary infections have led to significantly worse prognosis. While secondary infections with bacterial, viral, and other pathogens are well-described in influenza and other respiratory viral illnesses, characteristics and risk factors associated with secondary infections in COVID-19 patients have not been described. The purpose of this study was to determine the incidence of secondary infections in COVID-19 patients in a 32-bed medical-surgical ICU.

METHODOLOGY: This was a retrospective study of ICU patients ≥ 18 years of age, hospitalized with COVID-19 from March to November 2020. Patients were considered to have secondary infections if they had positive blood, sputum, and/or urine cultures with clinical markers of infection after a positive COVID test. Mortality, length of stay, mechanical ventilation, central lines, and steroids were secondary endpoints studied.

RESULTS: Among 175 ICU COVID-19 patients, 60 patients had at least one positive culture with clinical markers of infection. Gram-negative pathogens were commonly isolated in the respiratory and urine cultures, specifically *Pseudomonas aeruginosa* in respiratory and *E. coli* in urine cultures. Gram-positive isolates predominated in blood cultures, particularly *Enterococcus faecalis*. As expected, most of fungal isolates were found in urine cultures. Mortality rate among ICU COVID-19 patients with positive cultures and secondary infections was 51.7%.

CONCLUSIONS: ICU patients hospitalized with COVID-19 had a high incidence of secondary infection and mortality. Severe COVID disease, invasive respiratory support, steroid use, and central line presence seem to be risk factors for these patients.

L Evaluation of AUC/MIC Dosing Strategies at a Community Teaching Hospital

Room E

Presenters: Jacqueline Downey

Title: Evaluation of AUC/MIC Dosing Strategies at a Community Teaching Hospital

Author: Jacquie Downey, Jessica Starr, Hillary Holder, Kelsey Knorr

Presentation Objective: Analyze the feasibility of implementing an AUC/ MIC dosing protocol and subsequent effects in a community teaching hospital

Self-Assessment Question: Is it feasible to implement an AUC/MIC based dosing strategy at a community teaching hospital?

Purpose/Background: In April of 2020, the ASHP, IDSA, and SIDP guidelines for vancomycin were updated to recommend shifting to AUC/MIC based dosing strategies. Research published since the initial guideline in 2009 suggests that trough monitoring may fail to estimate a patient's true AUC up to 25 percent of the time. Additionally, use of AUC/MIC based dosing strategies may decrease the occurrence of nephrotoxicity. The purpose of this study is to evaluate an AUC/MIC dosing protocol piloted in a medical floor of the hospital.

Methods: From October 1, 2020 through November 1, 2020, all patients with an order for vancomycin in a predetermined area were screened for inclusion to receive AUC/MIC dosing with a goal concentration of 400-600. AUC/MIC was calculated using online calculators. The primary endpoint was the percent of patients who achieved target AUC/MIC of 400-600 at any point during vancomycin therapy. Key secondary endpoints include number of patients who are appropriately dosed with AUC/MIC method based on appropriate lab draws and number of patients who achieve a therapeutic trough.

Results: 22 patients were included in our analysis. 13 patients (59%) achieved a therapeutic AUC/MIC at any point in therapy, and 9 of these patients (69%) had a trough that would have been subtherapeutic. 9 patients (41%) achieved a therapeutic trough, and 6 patients (27%) had all vancomycin levels drawn appropriately.

Conclusions: Implementation of an AUC/MIC dosing strategy is feasible but presents new challenges and requires coordination between multiple departments.

N COMPARING THE SAFETY, EFFICIENCY, AND COST OF INTRAVENOUS (IV) PUSH VS PIGGYBACK LEVETIRACETAM AT A COMMUNITY TEACHING HOSPITAL

Presenters: Samuel Menasie

TITLE: COMPARING THE SAFETY, EFFICIENCY, AND COST OF INTRAVENOUS (IV) PUSH VS PIGGYBACK LEVETIRACETAM AT A COMMUNITY TEACHING HOSPITAL

AUTHORS: Samuel Menasie, Keith Johnson

OBJECTIVE: Describe the potential impact of implementing hospital-wide IV push levetiracetam.

SELF ASSESSMENT QUESTION: What is one of the potential outcomes of implementing hospital-wide IV push levetiracetam administration?

BACKGROUND: Compare the efficiency, safety, and cost of both IV push and IV piggyback levetiracetam administration in patients receiving their first dose at a community teaching hospital.

METHODOLOGY: After implementing hospital-wide IV push levetiracetam administration, this single-center cohort study included patients 18 years or older who received at least 1 IV piggyback dose pre-implementation (October 26th, 2019-January 26th, 2020) or at least 1 IV push dose post-implementation (October 26th, 2020-January 26th, 2021). IV push doses less than or equal to 1 gram were administered undiluted, and doses greater than 1 gram up to a maximum of 3 grams were diluted with normal saline or dextrose 5 percent in sterile water. The primary outcome was the time from order verification to medication administration. Secondary outcomes include drug cost per month, rate of significant change in blood pressure, and incidence of infusion site reactions.

RESULTS: In this IRB-exempt study, 75 patients were included in the pre-implementation phase, and 72 patients were included post-implementation. The post-implementation group showed a 23 minute faster average verification to administration time compared to the pre-implementation group. More patients in the pre-implementation group experienced a significant change in blood pressure. In addition, only 1 IV piggyback levetiracetam patient was found to have experienced an infusion site reaction compared to 0 patients in the post-implementation group. There was also a 19.6% difference in cost post-IV push levetiracetam implementation.

CONCLUSIONS: Although unable to achieve a statistically significant difference, IV push administration in the post-implementation group showed a faster time from average verification to administration. More research will be necessary to demonstrate a statistically significant difference in average verification to administration time as well as safety outcomes and cost.

Copy & Paste Video Link: <https://www.youtube.com/watch?v=nxEAfofCkr4>

O Evaluation of granulocyte colony-stimulating factor use in the outpatient infusion center setting: a multicenter chart review

Room A

Presenters: Timothy Coyle

TITLE: Evaluation of granulocyte colony-stimulating factor use in the outpatient infusion center setting: a multicenter chart review

AUTHORS: Timothy Coyle, Sonia Thomas

OBJECTIVE: To evaluate the use of pegfilgrastim and filgrastim and their biosimilars in the outpatient infusion center setting.

SELF ASSESSMENT QUESTION: For a patient receiving chemotherapy considered intermediate risk, which of the following is not a risk factor for febrile neutropenia?

- a) Age > 65 years receiving full dose chemotherapy
- b) Bone marrow involvement by tumor
- c) Renal impairment (CrCl < 50 mL/min)
- d) BMI > 25 kg/m²
- e) Prior chemotherapy or radiation

BACKGROUND: Neutropenic fever remains a serious complication of oncologic chemotherapy due to the myelosuppressive effects of most antineoplastic chemotherapy regimens. Since 1991, granulocyte colony-stimulating factors (G-CSF) have been effective in reducing the risk of developing febrile neutropenia and decreasing its duration. However, strong benefits are not seen in patients with low risk of febrile neutropenia, and use of G-CSFs in these patients may incur excessive cost and possible adverse effects.

The purpose of this study is to evaluate the use of pegfilgrastim or filgrastim in the setting of multiple outpatient infusion centers to determine if the use of G-CSF medications are being utilized in accordance with the National Comprehensive Cancer Network (NCCN) guidelines for primary or secondary prevention of febrile and non-febrile neutropenia due to chemotherapy.

METHODOLOGY: This is a multi-center, retrospective, chart review over a 3-month period. The data was collected from patients seen at any of the Northwest Georgia Oncology Centers (NGOC) locations from June 1, 2020 to August 31, 2020. The sample size was 283 patients over this time period. Patients aged 18 and older with a cancer diagnosis who received pegfilgrastim, filgrastim, or a biosimilar were included in the analysis. The patient charts were reviewed for the presence of chemotherapy regimens that were administered over this time period that were considered high-, intermediate-, or low-risk for febrile neutropenia. For patients with chemotherapy regimens not considered high-risk, patient-specific risk factors were evaluated to determine if G-CSF medications were used in accordance with the NCCN guidelines.

RESULTS: A total of 283 patients met the inclusion criteria and were evaluated. The average patient age was 60 years old, and the patient population was 75.3% female. Of the patients evaluated, 268 out of 283 patients (95%) were prescribed and administered pegfilgrastim, filgrastim, or a biosimilar in accordance with the NCCN guidelines for prevention of neutropenia or febrile neutropenia due to chemotherapy.

CONCLUSIONS: We found that over this time period, the majority of G-CSF medication administrations were used in accordance with the NCCN guidelines in the setting of oncology patients within the Northwest Georgia Oncology Centers healthcare system.

B AN EVALUATION OF COPD EXACERBATIONS AFTER UTILIZING THE IN-CHECK DIAL G16 DEVICE

Room K

Presenters: Megan Fonteno

TITLE: AN EVALUATION OF COPD EXACERBATIONS AFTER UTILIZING THE IN-CHECK DIAL G16 DEVICE

AUTHORS: Megan Fonteno, Emily Brinkman

OBJECTIVE: Describe differences among inhaler types and appropriate technique for COPD treatment.

SELF ASSESSMENT QUESTION: Does appropriate inhaler therapy and technique affect hospital readmission rates?

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is an irreversible chronic condition that interferes with a patient's normal breathing. COPD exacerbations requiring hospitalization from improper inhaler technique or patient confusion are common. The In-Check dial device is a coaching tool to train patients to make an inspiratory flow effort consistent with the requirements of their specific device. The device can also help determine if patients have enough inspiratory flow effort to adequately obtain medication from dry powder inhalers. The purpose of this study is to determine whether evaluating patient inhaler technique and inspiratory flow with the In-Check Dial G16 will have an effect on 30-day readmissions for COPD exacerbations.

METHODOLOGY: A retrospective chart review was conducted of adult patients seen in a transitional care clinic at local community hospital with COPD between 8/1/19-12/1/19 (pre-intervention) and 8/1/20-12/1/20 (post-intervention). Patients were included if they were 18 years and older and had an ICD-10 code pertaining to COPD. The primary objective was to determine the number of hospital readmissions due to COPD exacerbations in patients who received education using the In-Check Dial G16 vs. patients who did not. Secondary objectives included comparison of inhaler device changes (DPI to MDI) and cost savings utilizing patient assistance programs.

RESULTS: In progress

CONCLUSIONS: In progress

B Assessment of appropriate guideline-directed A1C goals in elderly diabetic patients who are managed by primary care providers

Presenters: Erika McDonald

TITLE: Assessment of appropriate guideline-directed A1C goals in elderly diabetic patients who are managed by primary care providers

AUTHORS: Erika McDonald, Whitney Narramore, Michael Knauth, Stephanie Grimes, Susan Roberts

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify patient characteristics that warrant relaxed A1C goals in elderly diabetic patients.

SELF ASSESSMENT QUESTION: List patient characteristics that should be considered when setting treatment goals for glycemia in elderly patients with diabetes.

BACKGROUND: This IRB-approved, retrospective chart review is intended to determine the percentage of elderly diabetic patients without guideline directed A1C goal therapy. Recently, a third-party payor shared that 46.5% of members have an A1C of $\leq 7\%$ with 7% of members being below 6%. This indicates we may be overtreating our patients to avoid upper limits of performance metrics and unfavorable CMS ratings. Per ADA guidelines, hemoglobin A1C goals for elderly patients must be determined in a patient-centered fashion, after assessing medical, psychological, functional and social characteristics, since the effects of intensive glycemic control may outweigh the benefit. The results will be compared to the literature to determine if primary care providers are managing elderly diabetic patients appropriately. Additionally, this study will perform a financial analysis of anti-diabetic medication costs and determine rates of hypoglycemia resulting in emergency room visits and hospitalizations.

METHODOLOGY: Patients will be identified from reports collected from a large third-party payor. Charts will be reviewed and information to be collected for each patient includes chronic diseases, A1C, anti-diabetic medications prescribed, hospitalizations and ER visits related to hypoglycemia, and indicators of functional status collected from annual wellness exam questionnaires. Utilizing this information, appropriate A1C goals will be determined referencing American Diabetes Association's Standard of Medical Care in Diabetes-2020, which will be compared to reported A1Cs. Rates of hypoglycemia resulting in ED visits and hospitalizations will also be compared between groups. Data regarding antidiabetic medications prescribed will be used to perform a cost analysis to demonstrate the avoidable cost of inappropriate aggressive therapy.

RESULTS: Seventy-five percent of elderly diabetic patients with an A1C $\leq 7\%$ were treated in a manner that agrees with ADA guidelines. Twenty-five percent of patients were possibly overtreated with aggressive therapy. Complex patients aggressively treated had an average increased cost of antidiabetic medications of approximately \$530 monthly.

CONCLUSIONS: Twenty-five percent of patients were possibly overtreated with aggressive therapy. However, this is lower than what has been reported in the literature. Additionally, a large cost savings opportunity was found for complex patients if providers relax A1C goal therapy.

LINK TO

PRESENTATION: <https://tennessee.zoom.us/rec/share/fad8mdwDXMvO7haZnJgHRifRGAjJA9CL1DR4ohGHaVPvP56LCI6-xTN-bulnKaBH.kI91SVRWI-2aFQ3y?startTime=1618507180000>

Presenters: Dana Crawford

TITLE: Pandemic preparedness among community pharmacists across South Carolina

AUTHORS: Dana Crawford, Tessa Hastings, Patti Fabel, Bryan Love, Gene Reeder

OBJECTIVE: Develop interventions within community pharmacies to create and improve pandemic preparedness

SELF ASSESSMENT QUESTION: What is one way that community pharmacists can improve their response during a pandemic situation?

BACKGROUND: As vital members of interdisciplinary healthcare teams, pharmacists have essential roles in patient care and public health. The COVID-19 pandemic has highlighted the important role of pharmacists on the frontlines and the importance of understanding pharmacy pandemic preparedness. However, limited previous research has explored U.S. pharmacists' experiences preparing for pandemic response. Thus, the purpose of this project is to determine South Carolina community pharmacists' knowledge, perceptions, and willingness to participate in outbreak response efforts. This data will support our long-term goal of improving pharmacist preparedness to respond in pandemic situations.

METHODOLOGY: This is a descriptive cross-sectional survey that will include actively practicing community pharmacists, specifically pharmacists in charge, throughout the state of South Carolina. A list of active pharmacists' addresses and phone numbers has been obtained from the South Carolina Board of Pharmacy. This survey will be distributed as part of a larger study of South Carolina pharmacists. A random sample of 60% of community pharmacists will be invited to participate in the needs assessment, with an approximate expected response rate of 30%. Pharmacists will receive a custom postcard with a unique QR link to the online survey. Any returned postcards due to incorrect mailing details will be monitored and additional pharmacists will be identified as replacements should the returned mail reach 25%. Additional recruitment methods may include telephone calls, social media posts, and SC pharmacy organization advertisements as needed. The survey will be hosted online using Qualtrics. Domains of the survey include participant demographics, baseline pandemic knowledge, and pandemic practice. The questionnaire will be pre-tested among a sample of five pharmacists prior to distribution.

Completed surveys will be reviewed weekly during the collection period. De-identified data will be analyzed using the IBM Statistical Package for Social Science (SPSS), and results for non-free response questions will be summarized by descriptive statistics. For the secondary objective evaluating differences in pandemic preparedness between chain retail pharmacists and independent pharmacists, descriptive statistics will also be used. Both descriptive statistics and qualitative descriptions will be used to identify factors associated with pandemic preparedness and willingness to participate in outbreak response efforts. For free-response questions, answers will be qualitatively analyzed and themes will be reported in the results.

RESULTS: South Carolina community pharmacists have limited experience and knowledge of pandemics, but about 30% of respondents have a formal plan or agreement with local health departments to prepare for the COVID-19 vaccine. All respondents have protocols in the pharmacy and PPE available for staff and patient purchase to ensure staff and patient safety.

CONCLUSIONS: Pandemic preparedness plans and formal training are limited among community pharmacies in South Carolina. Willingness to participate in outbreak efforts, though, is noted by pharmacy protocols to protect staff and patients and by the creation of formalized plans and agreements with local health departments in preparation for the COVID vaccine. Pandemic preparedness plans may increase readiness and ability to combat pandemic situations, but further studies are needed to assess their impact.

Presentation Link: <https://youtu.be/rDM6u71EiCc>

R Evaluation and implementation of recombinant factor VIIa criteria for use and dosing strategy in a large community hospital

Room D

Presenters: Alexis Skarupa

TITLE: Evaluation and implementation of recombinant factor VIIa criteria for use and dosing strategy in a large community hospital

AUTHORS: Alexis Skarupa, Jerry Robinson, Kate Adcock

OBJECTIVE: Describe the appropriate use of recombinant factor VIIa (NovoSeven) in cardiothoracic surgery and trauma patients.

SELF ASSESSMENT QUESTION: Why is a lower dose of recombinant factor VIIa (NovoSeven) recommended in cardiothoracic surgery patients?

BACKGROUND: Recombinant factor VIIa (NovoSeven) is used for refractory bleeding after cardiac surgery in non-hemophiliac patients and in severe trauma patients with massive bleeding. At this institution, the criteria for use had not been updated to reflect current practices. Recent evidence recommends the use of a lower dosing strategy of NovoSeven in post-cardiothoracic surgery patients to decrease adverse events. The purpose of this study is to update the criteria for use of NovoSeven to more closely reflect current practices, implement a lower dosing strategy in post-cardiothoracic surgery patients, and evaluate these changes.

METHODOLOGY: Data from patients who received at least one dose of NovoSeven from January 2019 to December 2020 was collected and evaluated to assess adherence to current criteria for use and occurrence of adverse events. Cardiothoracic Surgery was the service group most likely to not meet criteria when prescribing NovoSeven. After discussion with Trauma and Cardiothoracic Surgery, two separate criteria for use were created to meet the needs of each patient population. A new lower dosing strategy was adopted by the cardiothoracic surgeons and has been implemented. Data was collected and evaluated to assess the adherence to the criteria for use and the efficacy and safety of the new dosing strategy.

RESULTS: Prior to implementation, there were 39 total patients included in the study. There were 48 doses given and 77% of those doses met criteria the defined criteria for use. CV Surgery had a 38% compliance rate while Trauma had a 90% compliance. After the new criteria for use was implemented there were 12 total patients given 17 doses. 94% of the doses met the new criteria. The new CV Surgery dose was given one time. There were 11.7% thrombotic ADRs throughout the duration of the study.

CONCLUSIONS: The criteria for use for NovoSeven was updated to reflect the current practices of trauma and cardiovascular surgeons. The adverse even rate was similar to other studies. All dosing included in the study is off-label. There was no apparent correlation between NovoSeven administration and death.

R Guanfacine to Aid in Weaning Dexmedetomidine for Sedation in the ICU

Room B

Presenters: Mary Medley

TITLE: Guanfacine to Aid in Weaning Dexmedetomidine for Sedation in the ICU

AUTHORS: Mary Medley, Adam Wiss, Jordan Tullos

OBJECTIVE: The purpose of this study was to analyze guanfacine and dexmedetomidine practices for sedation in the ICU.

SELF ASSESSMENT QUESTION: Is there a role for guanfacine to transition patients off dexmedetomidine?

BACKGROUND: This was a single-center, retrospective chart review of adults treated with dexmedetomidine and guanfacine for sedation in the ICU between January 2017 and September 2020. Those who received less than two doses of guanfacine, received guanfacine prior to initiating dexmedetomidine, were being treated for alcohol withdrawal, or were receiving paralytics were excluded. The primary objective was to evaluate response to guanfacine at 24 hours. Response was defined as discontinuation of dexmedetomidine within 24 hours of initiating guanfacine without the need for a change in ancillary sedatives. Secondary objectives included rates of hypotension and bradycardia.

METHODOLOGY: This was a single-center, retrospective chart review of adults treated with dexmedetomidine and guanfacine for sedation in the ICU between January 2017 and September 2020. Those who received less than two doses of guanfacine, received guanfacine prior to initiating dexmedetomidine, were being treated for alcohol withdrawal, or were receiving paralytics were excluded. The primary objective was to evaluate response to guanfacine at 24 hours. Response was defined as discontinuation of dexmedetomidine within 24 hours of initiating guanfacine without the need for a change in ancillary sedatives. Secondary objectives included rates of hypotension and bradycardia.

RESULTS: Forty-eight patients were included. Twenty-one patients (44%) were successfully weaned off dexmedetomidine at 24 hours after initiating guanfacine. Of the 27 nonresponders, 9 had an increase in psychoactive medication(s) and 18 patients continued on dexmedetomidine at 24 hours. In nonresponders, the median time to dexmedetomidine discontinuation was 73 hours [IQR, 30-111]. Hypotension occurred in 3 (14%) responders and 3 (11%) nonresponders ($p > 0.99$). Bradycardia occurred in 1 (4%) nonresponder.

CONCLUSIONS: Guanfacine may be a safe and effective strategy to assist in transitioning patients off of prolonged dexmedetomidine infusions.

R The use of albumin in combination with furosemide vs. furosemide alone for de-resuscitation following sepsis or septic shock in critically-ill hypoalbuminemic adults

Room C

Presenters: Michael Long

TITLE: The use of albumin in combination with furosemide vs. furosemide alone for de-resuscitation following sepsis or septic shock in critically-ill hypoalbuminemic adults

AUTHORS: Michael Long, Eric Shaw, Stephanie Lesslie

OBJECTIVE: Assess if the addition of albumin to furosemide provides benefit.

SELF ASSESSMENT QUESTION: Does the addition of albumin to furosemide for de-resuscitation following sepsis or septic shock provide benefit?

BACKGROUND: Fluid therapy is a common treatment in the management of critically ill patients. While fluids are important in sepsis and septic shock management, fluid overload has been associated with poor outcomes in critically ill adults. This study evaluated the use of albumin to augment furosemide in de-resuscitation of the hypoalbuminemic critically ill patient as conflicting data have been published regarding its use in this patient population.

METHODOLOGY: Adult patients admitted to the ICU from July 1, 2015 to June 30, 2020 with hypoalbuminemia as defined as serum albumin < 2.5 g/dL and administered furosemide with albumin or furosemide alone for de-resuscitation following sepsis or septic shock were included. The primary outcome evaluated for this study was the change in net fluid balance after 5 days of de-resuscitation.

RESULTS: Eighty patients were included in this IRB-approved study. This study found that the addition of albumin to furosemide did not provide a significant difference in the change in net fluid balance after 5 days, with the albumin group having a mean + SD of 6,316.6 + 5,632.6 mL vs. 6,137.0 + 5,977.5 mL in the furosemide only group (p = 0.890). This study also found no statistically significant difference in cumulative urine output or net fluid balance at time points 6, 12, 24, 48, 72, 96, and 120, renal replacement therapy, ICU length of stay, mortality, and duration of mechanical ventilation.

CONCLUSIONS: The addition of albumin to furosemide for de-resuscitation following sepsis or septic shock in patients with hypoalbuminemia was not associated with an improvement of net fluid balance. There were no differences in secondary outcomes between groups.

Presentation link:

https://static.sched.com/hosted_files/2021southeasternresidency/b2/SERC%20presentation%20final.mp4**G Pharmacist identification of older patients' priorities in a home-based primary care program**

Room F

Presenters: Aparna Krishnamurthy

TITLE: Pharmacist identification of older patients' priorities in a home-based primary care program

AUTHORS: Aparna Krishnamurthy, Autumn Neff, Emma Feder, Casey Tak, Tasha Woodall

OBJECTIVE: Assess patient perspectives on having initial priorities identification conversations with pharmacists on a home-based primary care (HBPC) team

SELF ASSESSMENT QUESTION: How can we better cultivate a patient-centered approach in healthcare?

BACKGROUND: Patient Priorities Care (PPC) seeks to improve care quality for older adults with multiple chronic conditions by aligning clinicians' decisions with patients' values and healthcare priorities. PPC can help ease treatment burden and benefit other patient-centered outcomes. This study seeks to describe: 1) pharmacist-led implementation of PPC within a community HBPC program; and 2) the taxonomy of goals most important to this population.

METHODOLOGY: This is a prospective, single group observational study. Patients were excluded if they were non-English speaking or had barriers with telecommunication.

PPC utilizes a structured interview to explore patients' core values, specify realistic, actionable health outcome goals, and identify a "specific ask" – one thing they want most to focus on to improve their health. Four pharmacists who were trained to facilitate these conversations interviewed patients and/or caregivers to identify priorities. Pharmacists tracked time to complete conversations and recorded patients' or caregivers' responses to three questions designed to capture their reaction to the discussion, gauge their degree of satisfaction or dissatisfaction with the conversation, and solicit their perceptions about discussing healthcare priorities with the pharmacist in particular. Patients' goals were also categorized by value.

RESULTS: Priorities identification conversations were completed for 21 patients. Median conversation length was 30 minutes. Overall average satisfaction with conversations was 4.6/5. Ninety percent of patients considered it appropriate to have PPC conversations with a pharmacist, and 71% believed it was very important/beneficial to share their values and goals with their providers. The predominant value represented by patients' goals was "managing health," followed by "functioning/self-sufficiency."

CONCLUSIONS: Patients found PPC conversations to be a positive experience. Goals were most frequently related to managing symptoms and maintaining independence.

LINK TO PRESENTATION: <https://youtu.be/6I7xulbW19E>

I **Impact of discharge antibiotic prescription review on appropriate empiric antibiotic prescribing in a community hospital emergency department**

Room H

Presenters: Anna Felmer

TITLE: Impact of discharge antibiotic prescription review on appropriate empiric antibiotic prescribing in a community hospital emergency department

AUTHORS: Felmer AC, Simpson H, Kilburn J, Malloy V, Thakkar D, Crawford M, Bowers RD

OBJECTIVE: Identify frequent interventions made by pharmacists for antibiotic prescriptions upon discharge from a community hospital emergency department.

SELF ASSESSMENT QUESTION: Which type of intervention do pharmacists most frequently recommend for discharge antibiotic prescriptions in a community hospital emergency department?

BACKGROUND: Antimicrobial stewardship efforts in the emergency department are generally focused towards the inpatient setting. As half of outpatient medical care occurs in emergency departments, we sought to implement an outpatient-focused antimicrobial stewardship effort. The aim of this study is to evaluate the impact of a pharmacist prescription review process on improving appropriate empiric antibiotic prescribing at discharge from the emergency department at a community hospital.

METHODOLOGY: In October 2020, a prospective discharge antibiotic prescription review process was implemented in the emergency department of a large community hospital. A review was implemented to analyze prescriptions for two months before the new service implementation and two months after. Prescriptions were excluded if the patient was incarcerated, left against medical advice, or laboratory values were missing to determine if the prescription was appropriate. Prescriptions that met initial screening criteria during each timeframe were randomly selected to include 260 prescriptions in each group. The primary endpoint was rate of appropriate empiric antibiotic prescriptions based on indication, drug, dose, and duration. Time in the emergency department and 30-day revisit rates were also compared between the groups. Chi-squared test and unpaired t-tests were utilized for statistical analysis.

RESULTS: Significantly more antimicrobial prescriptions were appropriate in the post-intervention group compared with the pre-intervention group (80.0% vs. 58.4%, p-value <0.0001). Patient time in the emergency department was not significantly different between the two groups (P-value = 0.1636, 95% CI [-69.81 to 11.84]).

CONCLUSIONS: A prospective prescription review process was effective in increasing the rate of appropriate antibiotic prescriptions written for patients upon discharge from a large community hospital emergency department without increasing duration of visit.

I **The Efficacy and Safety of Remdesivir, Convalescent Plasma, and Dexamethasone in the Treatment of Patients with COVID-19**

Room I

Presenters: Saad A. Aldosari

TITLE: The Efficacy and Safety of Remdesivir, Convalescent Plasma, and Dexamethasone in the Treatment of Patients with COVID-19

AUTHORS: Saad A. Aldosari, Matthew W. Mcallister, Natalie Ramsey and Deanne Tabb

OBJECTIVE: The primary objective is to describe the clinical efficacy and safety of remdesivir, dexamethasone, and convalescent plasma versus supportive care in the treatment of patients with COVID-19.

SELF ASSESSMENT QUESTION: Based on the current literature, what role does convalescent plasma have in the treatment of patients with COVID-19?

BACKGROUND: The purpose of this study is to evaluate the efficacy and safety of the triple therapy including remdesivir, convalescent plasma, and dexamethasone compared to supportive care in the treatment of hospitalized patients with COVID-19.

METHODOLOGY: We performed a retrospective chart review of 260 patients with COVID-19 admitted to Piedmont Healthcare between March 1, 2020 to August 31, 2020. The primary outcome assessed is the time to clinical improvement within 28 days after inclusion. Clinical improvement is defined as a two-point reduction in patients' admission status on a six-point ordinal scale, or live discharge from the hospital, whichever came first. The secondary outcomes are all-cause mortality at 14 and 28 days, time of hospital stay in days, severity score at 14 and 28 days from time of inclusion, changes in inflammatory biomarkers including fibrinogen, D-dimer, ferritin and C-reactive protein (CRP) at 14- and 28-days and adverse drug reactions associated with the treatment. An excel spreadsheet is utilized to collect data for primary and secondary outcomes.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Tyler Merritt

TITLE: Urea for the Treatment of Acute Hyponatremia

AUTHORS: Tyler Merritt, Desirae Lindquist, Brianna Alexander, Laura Poveromo

OBJECTIVE: To determine the efficacy of urea, in combination with standard therapies, in the non-ICU management of acute hyponatremia.

SELF ASSESSMENT QUESTION: Based on its mechanism of action, which manifestation of hyponatremia is Urea contraindicated in?

a) Hypovolemic hyponatremia

b) Euvolemic hyponatremia

c) Hypervolemic hyponatremia

BACKGROUND: Hyponatremia, defined as a serum sodium ≤ 135 mEq/L, is the most common electrolyte abnormality encountered in clinical practice, with approximately 15-30% of hospitalized patients experiencing low serum sodium. Treatment strategies currently utilized in the management of hyponatremia are confounded by the lack of comparative, quality clinical efficacy data for each, the substantial cost burden for patients prescribed vasopressin antagonists, poor patient adherence to interventions like fluid restriction, and barriers to administration of certain treatments. A novel agent, urea, has been identified as a possible treatment of hyponatremia. To further define urea's role in the treatment of hyponatremia, this study aims to assess urea's effectiveness in the non-ICU management of acute hyponatremia due to any cause.

METHODOLOGY: In this multicenter, retrospective, cohort analysis, the electronic health record (EHR) was used to identify patients admitted to any of the three Duke University Health System hospitals between September 2017 and October 2020 and who had a diagnosis of hyponatremia. Patients were included in analysis if they were ≥ 18 years of age, had a serum sodium ≤ 130 mEq/L at the time of admission, and receipt of one or more doses of oral urea during the hospital encounter.

RESULTS: Due to low rate of enrollment, inferential statistical analysis was not performed. Though no definitive conclusions can be drawn, the data from this analysis suggests that there is no numerical difference in sodium values between the urea plus standard therapies group versus the standard therapies group alone 24 hours after treatment initiation. There was, however, a numerically greater number of patients with normalized serum sodium values in the urea + standard therapies group at discontinuation, discharge, or 7 days.

CONCLUSIONS: Urea is a reasonable treatment option in the non-ICU management of hyponatremia when combined with other therapies commonly used to mitigate hyponatremia.

O Effects of Thyroxine (T4) Supplementation on Progression-Free Survival in Metastatic Colorectal Cancer

Room A

Presenters: Celia Curtis

TITLE: Effects of Thyroxine (T4) Supplementation on Progression-Free Survival in Metastatic Colorectal Cancer

AUTHORS: Celia Curtis, Aseala Abousaud, Christine Davis, Jeffrey Switchenko, Sujata Kane, Bassel El-Rayes

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify whether supplementation with T4 affects outcomes, such as progression-free survival, in metastatic colorectal cancer patients.

SELF ASSESSMENT QUESTION: How does T4 promote cancer cell growth?

BACKGROUND: The thyroid hormone thyroxine (T4) has been implicated in promoting tumor progression. T4 signaling has been shown to affect cancer cell growth in part by influencing gene expression involved in cell proliferation and angiogenesis. Previous studies have shown that T4 induces proliferation of cancer cells in colorectal cancer (CRC), glioblastoma, non-small cell lung cancer, triple negative breast carcinoma, ovarian carcinoma, myeloma, and renal cell carcinoma. The primary purpose of this study is to evaluate whether supplementation with T4 affects outcomes, such as progression-free survival, in metastatic CRC patients. Additional objectives include comparing disease control (response to treatment or stable disease) and differences in overall survival. This study would add to the literature on the impact of thyroid supplementation with T4 on cancer patients, specifically within the metastatic CRC patient population.

METHODOLOGY: This study is a single-center, retrospective chart review including patients at Winship Cancer Institute with metastatic colorectal cancer who received at least one cycle of FOLFOX or FOLFIRI while taking levothyroxine during August 1, 2010 to June 30, 2020. Patients who received immunotherapy or were taking any of the following thyroid supplements: desiccated thyroid extract (T3/T4), Liotrix (T3/T4), Thyrolar (T3/T4), Liothyronine (T3), Cytomel (T3) will be excluded. Controls will be matched 3:1 to patients to assess the difference in progression-free survival between case-control matched groups. Survival endpoints will be estimated using the Kaplan-Meier method.

RESULTS: Between the case-control comparisons there were no significant differences except dose adjustments (p-value 0.003). Median progression-free survival was 7.1 months in the cases (range 4.1, 15.8) vs. 11.5 in the controls (range 8, 14); p-value 0.2192. Median overall survival was 22.6 months from treatment start (range 14.3, 66.2) for the cases, which was significantly less than the controls (N/A; range 53.7, N/A); p-value <0.001.

CONCLUSIONS: Overall, T4 supplementation appears to affect overall survival in metastatic CRC patients; further studies are warranted to confirm effects on progression-free survival and overall survival.

B Evaluation of a school of pharmacy and Veterans Affairs (VA) partnership to provide a telepharmacy-based population health clinic

Room J

Presenters: Jenna Nehls

TITLE: Evaluation of a school of pharmacy and Veterans Affairs (VA) partnership to provide a telepharmacy-based population health clinic

AUTHORS: Jenna R. Nehls, Courtney E. Gamston, Pamela Stamm, Kimberly Braxton Lloyd

OBJECTIVE: At the conclusion of my presentation, one will be able to describe how pharmacists can use population health dashboards to improve clinical outcomes.

SELF ASSESSMENT QUESTION: Name two examples of interventions that pharmacists provide based on population health dashboards?

BACKGROUND: The tools of population health management are used to improve clinical outcomes for individuals not meeting specific health goals. National quality measures are commonly used to identify measures for targeted intervention. A pharmacy school and a VA collaborated to improve patient care through the establishment of a pharmacist-led population health clinic. The purpose of this study is to determine the impact of interventions resulting from implementation of the clinic.

METHODOLOGY: A retrospective chart review of patients with diabetes identified during the 2019-2020 academic year with an A1c > 9%, not taking a statin medication, and/or needing annual labs was conducted. Primary outcomes include percentage of patients completing a diabetes management appointment with a clinical pharmacist, initiating a statin medication, and/or receiving annual labs after the population health interventions. Descriptive statistics and results of pre-/post-data utilizing paired t-test analyses are reported.

RESULTS: There were 36 patients identified from the A1c > 9% dashboard with an average A1c of 11.2%. Of these, 15 were referred to meet with a clinical pharmacist and 12 patients completed at least one appointment. The post-appointment A1c significantly decreased to 9.2% (p=0.04). Additionally, 184 patients not taking a statin medication were identified, 53 of which were eligible for a statin medication, and 8% initiated statin therapy. There were 80 patients identified that were due for annual labs and 17.5% completed labs after intervention.

CONCLUSIONS: Pharmacists are able to make a significant clinical impact using population health dashboards for patients with diabetes including A1c lowering, statin initiation, and completion of laboratory testing.

Presentation: https://docs.google.com/presentation/d/1_C6Mli8xpzs4qmLn1A_dWx00z5Tt6mklCZolnmxz6yl/edit?usp=sharing

B Persistence, Discontinuation or Switch of Disease-Modifying Therapies in Patients with Relapsing Multiple Sclerosis at a Health-System Specialty Pharmacy

Room K

Presenters: Miranda Kozlicki

TITLE: Persistence, Discontinuation or Switch of Disease-Modifying Therapies in Patients with Relapsing Multiple Sclerosis at a Health-System Specialty Pharmacy

AUTHORS: Miranda Kozlicki, Brandon Markley, Nisha Shah, Josh DeClercq, Leena Choi, Autumn Zuckerman

OBJECTIVE: Evaluate SP roles in DMT management. List reasons for DMT discontinuation/switch.

SELF ASSESSMENT QUESTION: How can pharmacists intervene during DMT discontinuation/switch?

BACKGROUND: Limited data exists on long-term persistence and reasons for discontinuation or switch of disease-modifying therapy (DMT) in patients with relapsing multiple sclerosis (RMS).

METHODOLOGY: We performed a retrospective analysis of adult patients with RMS who had ≥ 2 fills of DMT from May–October 2017. Data from first DMT fill ('index') through 36 months was used to assess persistence, using time to first discontinuation (index DMT stopped and no DMT restarted for >60 days) or switch (new DMT started within 60 days of last index DMT fill). We assessed Specialty Pharmacist (SP) involvement in and reasons for index DMT discontinuation/switch. Descriptive statistics were used to summarize sample characteristics and outcomes. The Kaplan-Meier estimation method was used to estimate probability of remaining persistent.

RESULTS: We included 543 patients (74% female, 84% white, mean age 49 ± 11 years): 193 remained on index DMT, 93 discontinued index DMT, 136 switched therapy, 93 transferred care, 21 were lost to follow-up, and 7 died.

Probability of remaining persistent through 36 months was 0.51 (95% confidence interval 0.46-0.56). Of patients who discontinued index DMT, median time on therapy was 514 days (interquartile range [IQR] 203, 722). Of patients who switched index DMT, median time on index DMT was 415 days (IQR 237, 623). Reasons for discontinuation included: side effects (32%), stable disease (13%), and prescriber-mandated hold (12%). Reasons for switch included: insurance change (36%), clinical decline (32%), and lack of benefit (10%). SPs intervened in 67% of discontinuations and 77% of switches, most commonly to provide education, establish follow-up care or secure insurance approval.

CONCLUSIONS: Changes in DMTs for RMS are common. Integrated SPs play a crucial role in ensuring safe transition off or between DMTs.

Y Assessing the Impact of Pharmacist-Initiated Education on Cost-Effective Nutrition for Diabetes Patients Impacted by COVID-19

Room G

Presenters: Victoria Phan

TITLE: Assessing the Impact of Pharmacist-Initiated Education on Cost-Effective Nutrition for Diabetes Patients Impacted by COVID-19

AUTHORS: Victoria Phan, Tiffany Park, Paige Brockington, Jennifer Elliott

OBJECTIVE: The objective of this study is to identify patients diagnosed with type 2 diabetes mellitus (T2DM) who have been negatively impacted financially by the COVID-19 pandemic and have decreased blood glucose control in association to food instability or reduced access to nutritious food. After identification of an acute financial issue, investigators will provide identified patients with educational materials and resources about cost-effective nutritional options to assist in blood glucose control.

SELF ASSESSMENT QUESTION: Can pharmacist-intervention and education about cost-effective nutrition lead to decreased blood glucose levels and hemoglobin A1c (HbA1c) in T2DM patients suffering financially due to COVID-19?

BACKGROUND: Diabetes is a chronic illness that affects 34.2 million adults in the US. The COVID-19 pandemic caused a rise in unemployment rates up to 14.7% total in April 2020.

METHODOLOGY: A pre-survey will be given to T2DM patients to collect demographic/contact information and questions to assess the impact of COVID-19 on their current financial situations, their changes in diet, and self-measured blood glucose (SMBG). The survey will be conducted at two separate clinics that provide diabetes care and at a community-based specialty pharmacy. Patients will be enrolled in the study if they meet criteria for 1) negative financial impact due to COVID-19 and 2) decreased control of blood glucose and/or HbA1c. Patients enrolled in the study will receive resources related to cost-effective food options and will also be provided a full consultation regarding the resources.

Patients will be asked to self-report morning fasting SMBG levels and HbA1c at the start of the investigation. SMBG levels will be collected by phone monthly for three months. At the end of the 3-month study period, patients will be asked to turn in SMBG logs, most recent A1c, and complete a post-survey. The post-survey will assess their current financial situation and perception of the impact of diabetes care, nutrition counseling, and educational materials.

RESULTS: In progress

CONCLUSIONS: In progress

<https://vimeo.com/538384699>

R Comparison of Low vs. High Dose (Prothrombin Complex Concentrate) PCC in Patients Undergoing Cardiothoracic Surgery

Presenters: Meera Jayendra Patel

TITLE: Comparison of Low vs. High Dose (Prothrombin Complex Concentrate) PCC in Patients Undergoing Cardiothoracic Surgery

AUTHORS: Meera Patel, Nicholas Barker, William Bender

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify and compare low dose versus high dose PCC in the treatment of bleeding associated with cardiothoracic surgeries.

SELF ASSESSMENT QUESTION: Is a lower dose of PCC as safe and efficacious as higher doses?

BACKGROUND: Data reveals that PCC may be more advantageous due to its increased concentration of clotting factors, more rapid reversal, and reduced blood transfusion requirements in comparison to FFP. The purpose of the study was to compare the efficacy and safety of low dose PCC (15 units/kg) to high dose PCC (25 units/kg) in patients undergoing cardiothoracic surgeries.

METHODOLOGY: Participants were included if > 18 years old, undergoing cardiothoracic surgery (CTS) at ESJH who received PCC. Participants were excluded if they had a history of hypercoagulable conditions, anticoagulant use within 2 days, or pregnant.

RESULTS: Overall, baseline demographics were similar in both groups in terms of age, gender, and race. Approximately 96 patients were evaluated, 49 patients received low dose PCC and 47 patients received high dose PCC. On average low dose PCC patients had less blood product usage including red blood cells ($p=0.175$, 95% CI - 0.88, 4.77), platelet transfusions ($p = 0.026$, 95% CI 0.43,6.60), and fresh frozen plasma ($p = 0.014$, 95% 0.33 - 2.91). However, high dose patients received slightly more pooled cryoprecipitate. Patients who received high dose PCC had an increased incidence mortality (18.8%) and washout overall (14.6%). Viscoelastic testing was more common in the low dose group.

CONCLUSIONS: This retrospective chart review revealed low dose PCC is associated with less blood product usage. Lower dosing may pose similar safety concerns and similar efficacy results in comparison to higher doses of PCC proving to be beneficial and for optimization of patient care in aortic-cardiothoracic surgery patients.

<https://youtu.be/PxidV0Y-DkQ>

R Comparison of Three Adjunctive Agents for the Treatment of Benzodiazepine-Refractory Alcohol Withdrawal Syndrome

Room C

Presenters: Gina Cherniawski

TITLE: Comparison of Three Adjunctive Agents for the Treatment of Benzodiazepine-Refractory Alcohol Withdrawal Syndrome

AUTHORS: Gina Cherniawski, Erica Merritt, Allison Powell

OBJECTIVE: Evaluate the efficacy and safety of phenobarbital, propofol, and dexmedetomidine for the treatment of BRAW.

SELF ASSESSMENT QUESTION: What adjunctive study agent was most efficacious in treating BRAW?

BACKGROUND: Compare the utilization and efficacy of phenobarbital, propofol, and dexmedetomidine for patients admitted with benzodiazepine-refractory alcohol withdrawal (BRAW). Evaluate the incidence of patients requiring treatment with a second study agent within 24 hours after the initiation of the primary study agent.

METHODOLOGY: Retrospective chart review of patients admitted for alcohol withdrawal syndrome (AWS). Eligible participants were ≥ 18 years old with a diagnosis of AWS treated with intravenous phenobarbital, propofol, or dexmedetomidine. Efficacy was evaluated by comparing Clinical Institute Withdrawal Assessment for Alcohol-Revised (CIWA-Ar) scores post-study drug administration and need for a second study agent within 24 hours. Treatment success was defined as achieving a CIWA-Ar <16 at 24-hours after the initiation of a study agent.

RESULTS: Ninety-one patients were included in the study. For the primary objective, 97%, 89%, and 73% of patients receiving phenobarbital, propofol, and dexmedetomidine achieved a CIWA-Ar score <16 after administration of the study agent, respectively. Prior to the initiation of the study agent, 32%, 58%, and 63% of patients in the phenobarbital, propofol, and dexmedetomidine groups had CIWA-Ar scores >16 , respectively. For the secondary objective, 16%, 53%, and 10% of patients in the phenobarbital, propofol, and dexmedetomidine groups required treatment with a second study agent within 24 hours after the initiation of the primary agent, respectively.

CONCLUSION: There was a significant difference in the phenobarbital group achieving CIWA-Ar scores <16 at 24 hours post-study drug administration. In this evaluation, phenobarbital was typically used to prevent adverse events from AWS rather than in patients refractory to symptom-triggered benzodiazepine therapy. Future studies are needed to determine if phenobarbital would be as effective if utilized more appropriately in BRAW.

Audiovisual Link: <http://youtu.be/-JmiKWx0INE>

R Sepsis alert early indicator in the emergency department: effect on antibiotic timing – a quasi-experimental review

Room B

Presenters: Renato Aranda

TITLE: Sepsis alert early indicator in the emergency department: effect on antibiotic timing – a quasi-experimental review

AUTHORS: Renato E. Aranda, Lauren Wright, Jason E. Dover, Sarah-Anne Blackburn, Jordan Vickers

OBJECTIVE: Assess the impact of an electronic visual alert system on the time to antibiotic administration

SELF ASSESSMENT QUESTION: What role can ED pharmacists play in the management of septic patients?

BACKGROUND: Current evidence-based sepsis guidelines recommend the administration of broad-spectrum intravenous antibiotics within 3 hours of presentation. In 2019, East Alabama Medical Center (EAMC) implemented an electronic visual alert system for patients with positive sepsis screenings at triage to improve adherence to current guidelines. The purpose of this study is to compare the time to antibiotic administration in septic patients admitted through the emergency department before and after the implementation of an electronic visual alert system.

METHODOLOGY: In this retrospective cohort study, patients ≥ 19 years admitted through the EAMC emergency department with a diagnosis of sepsis or septic shock from January 2019 to July 2019 and September 2019 to March 2020 were evaluated. Patients who became septic post-admission were excluded. The primary outcome was the percentage of patients receiving broad-spectrum IV antibiotics administered within 3 hours of presentation. Secondary outcomes included time to antibiotic administration, impact of ED pharmacist presence regarding time to antibiotic administration, length of stay, and mortality.

RESULTS: The percentage of patients receiving broad-spectrum IV antibiotic administration within 3 hours was the same (66%) between groups. Median time to antibiotics was reduced by 17 minutes in the post-intervention group (137 vs 154 minutes, $p=0.2668$). Time to antibiotics when a pharmacist was present in the ED was 154 minutes pre-intervention and 145 minutes post-intervention ($p=0.6309$). Additionally, the post-intervention group had lower all-cause mortality (8 vs 11, OR 0.7: 95% CI, 0.27-1.83) and reduced length of stay (6 vs 7 days, $p=0.3096$).

CONCLUSIONS: The implementation of a visual alert system for patients with positive sepsis screenings at triage was associated with decreased time to antibiotics, reduced length of stay, and lower mortality rates.

Link: <https://drive.google.com/drive/folders/1mDZym0AM51N1qaJJ2umvMNjxni380KF?usp=sharing>

Presenters: Sam Glenn

TITLE: Bacterial Pneumonia Co-infection in COVID-19 Patients

AUTHORS: Samuel Glenn, PharmD; Ryan Lally, PharmD, BCPS; Rachel Langenderfer, PharmD, BCPS; Lloyd Sarbacker, PharmD, BCPS; Linh Tran, PharmD Candidate; Madelyne Warren, PharmD Candidate

OBJECTIVE: At the conclusion of my presentation, the participant will be able to: describe the incidence of bacterial pneumonia co-infection in COVID-19 patients at admission, assess the appropriateness of empiric antibiotics, identify patients in whom antibiotics can be spared.

SELF ASSESSMENT QUESTION: Which COVID-19 patients should be considered for empiric antibiotics upon admission to the hospital?

BACKGROUND: Evidence has shown that patients who suffer from a viral respiratory infection may also suffer from bacterial co-infections. This study looks at the incidence of bacterial pneumonia co-infection in COVID-19 patients and usage of empiric antibiotics.

METHODOLOGY: De-identified data was obtained retrospectively from patient charts. Data was collected concerning the patient's baseline characteristics, history of present illness, length of stay, and pharmacological/antimicrobial and microbiological history. Patients were classified into either "community-acquired bacterial pneumonia co-infection" (CABPC) based on the timing of the cultures or antibiotics. A patient was considered to have CABPC if cultures obtained within 72 hours of admission resulted positive. This study also assessed for clinical outcomes related to length of stay and discharge. 163 patients who were cultured were randomly selected for analysis if they met the following criteria: admitted to Bon Secours St. Francis Downtown from 3/15/2020-9/15/2020, positive test for or clinical diagnosis of COVID-19.

RESULTS: Of the 163 patients, only 7 were found to have a bacterial co-infection (4.8%) on presentation. The only statistically significant baseline characteristic between the CABPC group and the Non-CABPC groups was mean procalcitonin at baseline, 14.43 vs 1.02 ($p < 0.001$). Other characteristics were not statistically different. There was a significant difference in 14-day mortality (43% vs 12%, $p = 0.02$) with a lower 14-day mortality in Non-CABPC, but no difference in 30-day or overall mortality between groups ($p = 0.159$).

CONCLUSIONS: Based off the data from this retrospective, observational study, patients rarely present with CABPC. Many patients may not require antimicrobial coverage at admission, but this study does not provide sufficient evidence for baseline characteristics for risk stratification. Procalcitonin may be of clinical utility, but further evidence and studies are warranted.

PRESENTATION LINK: <https://youtu.be/ZPX5ge1809k>

Presenters: Brittany Till

TITLE: Evaluation of duplicate perioperative antibiotic therapies and potential adverse events

AUTHORS: Brittany U. Till, Joshua Settle, Mary McKnight

OBJECTIVE: Evaluate the incidence of duplicate perioperative antibiotics and resulting adverse events.

SELF ASSESSMENT QUESTION: What was the most common perioperative antibiotic duplication?

BACKGROUND: The usage of perioperative antibiotics is a standard of care practice to decrease potential post-operative infections. However, the initiation of perioperative antibiotics in patients already receiving antibiotic coverage creates a preventable duplication of therapy. Duplication of perioperative antibiotic therapy may lead to increased antimicrobial resistance, unnecessary costs, drug-drug interactions, and preventable adverse events. The purpose of this study is to evaluate the incidence of duplicate perioperative antibiotics and potential adverse events at Baptist Medical Center South (BMCS). Potential cost savings will also be determined.

METHODOLOGY: This is a single-center, institutional review board approved retrospective chart review of patients that received perioperative antibiotics at BMCS from January to November 2020. Patient's charts were reviewed if they met all inclusion criteria. The electronic medical record system was utilized to review patient demographics, perioperative antibiotics administered, renal function changes and positive *Clostridium difficile* reported within fourteen days following duplicate antibiotic use. The primary outcome was to determine the percentage of patients receiving duplication of perioperative antibiotics. The secondary outcomes included the percentage of patients that experienced an adverse event and potential cost savings from eliminating duplicate antibiotic use.

RESULTS: Duplication of perioperative antibiotics occurred in 3.4% of patients undergoing surgical procedures. Out of the 147 patients that received duplication of perioperative antibiotics, sixteen percent experienced an adverse event. The most common adverse event was acute kidney injury (46%). Other adverse events included renal changes (33%) and supratherapeutic Vancomycin levels (21%). The estimated cost savings was around \$4,000 which includes order entry time, verification time, preparation time, and product usage.

CONCLUSIONS: There was a lower incidence rate of adverse events than anticipated; however, there were still adverse events that occurred with changes in renal function and elevated vancomycin levels. The results will be taken to Antimicrobial Stewardship (AMS) subcommittee and discuss future interventions that can be implemented to reduce unnecessary duplicates of therapy.

Presenters: Alyssa Osmonson

TITLE: Non-vitamin k oral anticoagulants in end-stage renal disease

AUTHORS: Alyssa Osmonson, Nathan Pinner, Jessica Starr, Kenda Germain, Thomas Achey

OBJECTIVE: State if NOACs are safe and efficacious in patients with ESRD

SELF ASSESSMENT QUESTION: Are NOACs safe and efficacious in patients with ESRD?

BACKGROUND: With the development of non-vitamin K oral anticoagulants (NOACs) options for anticoagulation in the general population has greatly increased. Trials demonstrating efficacy of NOACs consistently exclude patients with end-stage renal disease (ESRD). Results observational studies of NOACs in ESRD patients have led to changes in manufacturer and guideline recommendations, despite their small sample sizes. The purpose of this study is to determine if NOACs are safe and efficacious in patients with ESRD at Princeton Baptist Medical Center.

METHODOLOGY: This study is a retrospective, single-center chart review. The electronic medical record was used to identify patients 18 years and older admitted from January 1, 2015-August 1, 2020 with ESRD and received an oral anticoagulant for at least 24 hours during admission or at discharge. Patients were excluded for concomitant use of dual antiplatelet therapy, high risk of bleeding, invalid contact information or inability to contact patient after 2 attempts if unable to obtain information from chart review alone, or pregnancy. The primary endpoint was the occurrence of major bleeding. Secondary outcomes included the occurrence of minor bleeding, thrombosis, and admission secondary to a bleeding event or thrombotic event.

RESULTS: 68 patients were included in the study. 36 patients received warfarin and 32 received a NOAC. The primary outcome occurred in 15 (42%) of patients on warfarin and 5 (16%) patients receiving a NOAC ($p=0.0317$). There was no statistically significant difference in secondary outcomes.

CONCLUSIONS: Warfarin is associated with an increased risk of major bleeding in patients with ESRD when compared to treatment with a NOAC.

Video Link: <https://youtu.be/n4DPD-XhdU0>

O A real-world safety analysis of programmed death-1 pathway inhibitors (PD-1i) in patients with solid tumor malignancies and preexisting autoimmune disorders Room A

Presenters: Jordyn Higgins

TITLE: A real-world safety analysis of programmed death-1 pathway inhibitors (PD-1i) in patients with solid tumor malignancies and preexisting autoimmune disorders

AUTHORS: Jordyn P. Higgins; Anh V. Trinh; Tyler Beardslee; Marley Watson; Subir Goyal; Suchita Pakkala; Ragini Kudchadkar; Kristina F. Byers

OBJECTIVE: To characterize the safety and efficacy of PD-1i in patients with preexisting autoimmune disorders

SELF ASSESSMENT QUESTION: True or false: Based upon this presentation, immunotherapy can be safely used in patients with solid tumor malignancies and controlled autoimmune disease

BACKGROUND: Clinical trials evaluating PD-1i have largely excluded patients with PAD due to their innate predisposition to immune-related adverse events (irAEs). Only a few retrospective studies have evaluated the safety and/or efficacy of immunotherapy in patients with PAD. With many Americans currently living with PAD and the widespread use of immunotherapy, additional studies are needed to determine if PAD increases the risk of developing irAEs after PD-1i administration.

METHODOLOGY: A retrospective chart review was conducted on adults with solid tumor malignancies who received > 1 dose of pembrolizumab or nivolumab at Emory Healthcare from September 4, 2014 until December 31, 2019.

Patients were grouped according to PAD comorbidity status and matched using propensity score matching. The primary outcome is the incidence of irAEs.

RESULTS: Seventy-seven patients in the autoimmune group and 156 patients in the non-autoimmune group were included in this study. The majority of patients had an ECOG score of 0-2 (93.8%), metastatic disease (79.8%), and did not receive previous immunotherapy (90.9%). The most common solid tumor types were skin (32.2%), aerodigestive (26.6%), and genitourinary (19.7%). PAD was controlled in all of the autoimmune patients prior to immunotherapy (100%). In the autoimmune group, significantly more patients were female (49.35% vs. 33.97%, $p=0.024$), received 0 prior lines of therapy (59.74% vs. 42.31%, $p=0.012$), and had inflammatory disease at baseline (22.08% vs. 12.18%, $p=0.049$). The rate of irAE was 32.7% in the non-autoimmune group and 42.9% in the autoimmune group (OR 0.65, 95% CI 0.37-1.14, $p=0.130$).

CONCLUSIONS: Our data suggests that immunotherapy can be safely used in patients with solid tumor malignancies and controlled autoimmune disease.

1 Thrombosis Rates in Pediatric Liver Transplant Recipients Room F

Presenters: Anna Crooker

TITLE: Thrombosis Rates in Pediatric Liver Transplant Recipients

AUTHORS: Anna Crooker, Rochelle Liverman, Staci Serluco, Jenny Li, Gary Woods

OBJECTIVE: Evaluate the rates of thrombosis after the implementation of a target anticoagulation protocol

SELF ASSESSMENT QUESTION: Which of the following patients would benefit from anticoagulation after liver transplant?

BACKGROUND: Hepatic artery thrombosis (HAT) and portal vein thrombosis (PVT) are life-threatening complications after liver transplant. Thrombosis occurs due to an imbalance of pro-coagulation and natural anticoagulation factors. The use of anticoagulation after transplantation is not standardized and must balance the patient's risk of bleeding and thrombosis. Our primary objective was to determine the effect of an anticoagulation protocol on incidence of thrombosis after transplant.

METHODOLOGY: A retrospective chart review of liver transplant recipients was conducted at Children's Healthcare of Atlanta from 1/1/2009-12/31/2019. The primary outcome was to compare the incidence of thrombosis prior to our anticoagulation protocol (1/1/2009-7/31/2016) and after implementation (8/1/2016-12/31/2019). Prior to protocol implementation there was no standardized approach to anticoagulation use. The protocol encouraged prophylactic anticoagulation in the following patients: < 15 kg, underlying metabolic disease or malignancy, thrombosis of the native liver, vascular reconstruction, retransplantation due to thrombosis, and physician discretion. Secondary outcomes included time to thrombosis, adverse events, and patient and graft survival.

RESULTS: We reviewed 257 patients, 165 pre and 92 post protocol. The overall thrombosis rate was 13.7% pre protocol which was not statistically different from 18.3% post protocol ($p=0.3067$). Patients ≤ 8.7 kg ($p=0.0283$) and ≤ 5 months of age ($p=0.0378$) were found to have a significantly higher risk of thrombosis after transplant. The median time to thrombosis was 2.5 days pre protocol which was not statistically different from 7.5 days post protocol ($p=0.5888$). Patients experiencing a thrombotic event had a significantly lower survival rate (112 months with thrombosis, 140 months without; $p=0.0432$) as well as graft survival rate (41 months with thrombosis, 71 months without; $p=0.0057$). Twenty adverse events were reported in patients with thrombosis receiving anticoagulation compared to 6 adverse events in patients without thrombosis receiving anticoagulation.

CONCLUSIONS: Patients ≤ 8.7 kg and ≤ 5 months of age are at highest risk for thrombosis after transplant.

B Implementation of Interprofessional Diabetes Telehealth Services in a Rural Primary Care Organization*Presenters: Emma Feder*

TITLE: Implementation of Interprofessional Diabetes Telehealth Services in a Rural Primary Care Organization

Room J

AUTHORS: Emma Feder and Anne ("Andy") Warren

OBJECTIVE: Describe the implementation of a multidisciplinary diabetes telehealth clinic at a primary care site

SELF ASSESSMENT QUESTION: Which methods may be utilized to implement an interprofessional diabetes telehealth clinic in a primary care setting?

BACKGROUND: Diabetes affects many lives, and those most impacted include rural populations who lack regular access to healthcare. The coronavirus pandemic has worsened this problem. At Mountain Area Health Education Center (MAHEC), a primary care center located in Asheville, North Carolina, our clinical pharmacy department utilizes telehealth-based care models to extend health services to western North Carolina, an area with a significant underserved population. Our longitudinal diabetes telehealth program began in 2018 and developed into a pharmacy resident-run, interdisciplinary clinic.

METHODOLOGY: We conducted interviews with previous pharmacy residents to gather information about program implementation, including success and challenges. We also sought feedback from key personnel including current pharmacy residents, pharmacists, physicians, nutritionists, and schedulers on how to improve the clinic. We then determined emerging patterns regarding challenges, successes and suggestions for improvement.

RESULTS: In fall 2018, the pharmacotherapy department established a diabetes telehealth clinic, which functions one half-day per week. It allows frequent follow-up with rural patients, helps our organization meet Accountable Care Organization quality measures, and gives residents exposure to diabetes care. It also evolved to include nutrition counseling. Other areas of growth include streamlining schedules and increasing awareness about the clinic.

Successes include interdisciplinary involvement, incorporation of learners, and regular patient follow-up. Challenges include lack of physician awareness, the need for additional clinic days, and the necessity of a "graduation" system for our patients.

CONCLUSIONS: Implementation of an interprofessional diabetes telehealth service is possible in primary care.

Benefits include increased access to care, learning opportunities for residents and students, and increased interprofessional collaboration. Continuous quality improvement is necessary to address barriers and evolve to meet the needs of patients and providers.

Presentation link: <https://youtu.be/QJt2QOh-Onc>

B Increased utilization of a home telehealth program to improve outcomes in a pharmacist-run medication management clinic

Room K

Presenters: Brianca Fizer

TITLE: Increased utilization of a home telehealth program to improve outcomes in a pharmacist-run medication management clinic

AUTHORS: Brianca Fizer

OBJECTIVE: Enroll Veterans with uncontrolled diabetes followed by a clinical pharmacy specialist into CCHT to evaluate management and outcomes.

SELF ASSESSMENT QUESTION: Will enrolling Veterans with high-risk diabetes from a CPS clinic into CCHT be an effective method for improving outcomes and monitoring patients more closely?

BACKGROUND: Diabetes affects nearly 25% of Veterans compared to only 10% of nonveterans. Interventions made by clinical pharmacy specialists (CPS) have demonstrated improvement in clinical outcomes; however, many Veterans are still not meeting their clinical goals for diabetes. The Veteran's Health Administration's program, Care Coordination/Home Telehealth (CCHT), was created to enhance the care of Veterans who have chronic conditions by performing remote monitoring and care coordination. Thus, increasing enrollment into CCHT could result in better diabetes management.

METHODOLOGY: This study enrolled CPS-followed Veterans with longstanding diabetes into CCHT. Data collection includes a retrospective chart review of a 6-month period pre-enrollment and post-enrollment into CCHT. A pre- and post-enrollment analysis will evaluate the effectiveness of CCHT on outcomes including A1c, blood glucose (BG), hypoglycemic events, CPS interventions, and number of CPS visits.

RESULTS: Sixteen Veterans were enrolled. Average age was 63.4±12.1 years, 100% were male with type 2 diabetes, 69% were black, average baseline A1c was 10.4±2.6, and 56% stayed enrolled in CCHT the entire study period. Data from pre – enrollment endpoints was compared to post – enrollment endpoints: average A1c decreased 10.3±2.5 to 8.4±1.7 mg/dl, average blood glucose decreased 159.4±21.0 to 148.7±36.9 mg/dl, average hypoglycemic events increased 2.0±1.4 to 10.4±8.74, average number of pharmacist interventions increased 8.5±7.0 to 9.5±7.1, and the average number of CPS visits 4.5±1.9 to 6.4±5.5.

CONCLUSIONS: CCHT is an effective method for monitoring patient outcomes more closely. On average patients who were enrolled in CPS clinics plus CCHT showed improvement in their A1c, and frequent hypoglycemic events were identified and addressed.

C Optimal timing of non-vitamin K oral anticoagulant initiation in patients with pulmonary embolism after catheter-directed thrombolysis*Presenters: Uma Patel*

TITLE: Optimal timing of non-vitamin K oral anticoagulant initiation in patients with pulmonary embolism after catheter-directed thrombolysis

AUTHORS: Uma Patel, Mary Katherine Stuart, Megan Autrey, Nathan Pinner, Thomas Achey

OBJECTIVE: Define the optimal timing of oral anticoagulation initiation post-Ekasonic Endovascular System (EKOS) procedure in patients with pulmonary embolism (PE).

SELF ASSESSMENT QUESTION: Is it safe to initiate NOAC < 12 hours after EKOS?

BACKGROUND: In patients with pulmonary embolism (PE) who receive EKOS, American College of Chest Physicians has recommended parenteral anticoagulation following catheter-directed thrombolysis with a transition to either warfarin or NOAC. NOACs are now drug of choice in non-cancer related venous thromboembolism events (DVT/PE) and several studies have evaluated NOACs versus warfarin in post-EKOS, however the optimal timing of initiation of oral anticoagulation is largely unknown. The purpose of this study was to evaluate the optimal timing, in regards to safety and efficacy, of NOAC initiation post-EKOS.

METHODOLOGY: Patients > 18 years of age who underwent an EKOS procedure for submassive or massive PE, followed by administration of NOAC therapy were included. The primary outcome was a composite of major bleeding and recurrent VTE events during hospitalization following EKOS. Secondary outcomes included individual components of the primary outcome, minor bleeding, hospital LOS, and in-hospital mortality. Endpoints were compared between two groups who received their first dose of NOAC either 0-12 hours (early) or greater than 12 hours (delayed) after EKOS sheath pull.

RESULTS: 59 patients included in the early group and 4 patients included in the delayed group. Primary outcome observed in two patients in the early group (p-value = 0.714). Secondary outcomes observed in the early group (p-value = 0.797). Hospital length of stay was an average of 5-6 days (p-value = 0.794).

CONCLUSIONS: No statistically or clinically significant difference in initiating NOAC therapy either early or delayed after sheath pull. Risk of current VTE and bleeding events of 1.7% falls within range of 0-5% seen in previous studies, however larger studies are needed to definitively assess optimal timing of NOAC initiation.

Video Presentation: <https://vimeo.com/538844689>

R Evaluation of de-resuscitation using albumin with loop-diuretics in critically ill adults (DUAL-study)*Presenters: Theodore Vaggalis*

TITLE: Evaluation of de-resuscitation using albumin with loop-diuretics in critically ill adults (DUAL-study)

AUTHORS: Theodore C. Vaggalis, W. Anthony Hawkins, Susan E. Smith, Erin Waldee

OBJECTIVE: Describe how albumin may enhance the effect of loop diuretics for de-resuscitation.

SELF ASSESSMENT QUESTION: What mechanistic pathways may allow albumin to enhance the effect of loop diuretics for de-resuscitation?

BACKGROUND: Albumin is sometimes prescribed in combination with loop diuretics to augment the diuretic effect in order to mitigate the harm from fluid overload. Heterogeneous patients and various dosing strategies have led to conflicting findings. This study aims to determine factors associated with responding to de-resuscitation using albumin with loop diuretics (DUAL-therapy) in critically ill patients.

METHODOLOGY: This is a single-center, IRB-approved, retrospective cohort study of adult patients admitted to an intensive care unit between January 2016 and August 2020. Patients were included if they received albumin within 3 hours of the loop diuretic. For patients who received DUAL-therapy more than once, only the first occurrence was included. Patients were dichotomized into two groups: responders (having a change in total urine output of at least 600 milliliters within six hours following DUAL-therapy) and non-responders. The primary outcome was to determine which factors may influence response to therapy. The secondary outcomes included the incidence of progression to renal replacement therapy (RRT), hypokalemia ($K < 3.5 \text{ mEq/L}$), hyponatremia ($\text{Na} < 135 \text{ mEq/L}$), hypochloremia ($\text{Cl} < 96 \text{ mEq/L}$), and metabolic alkalosis ($\text{pH} > 7.45 / \text{paCO}_2 \text{ 35-45 mmHg} / \text{HCO}_3 > 24 \text{ mEq/L}$) following DUAL-therapy among the two groups.

RESULTS: 98 total patients were included in this study; 46 (47%) responders and 52 (53%) non-responders. After completing the multivariate logistic regression, urine output 24hrs prior to therapy was the only factor associated with a statistically significant finding for responding to therapy (OR=2.54, 95% CI= 1.28-5.06, p-value= 0.008). There were no statistically significant findings among secondary outcomes between the two groups.

CONCLUSION: Results indicate that having a higher urine output 24hrs prior to therapy is associated with responding to therapy. Further research is warranted.

Link to Recording: https://drive.google.com/file/d/1V0wzshozNX4o-zv1cKkdA6ms37aq1Cb_/view?usp=sharing

R Evaluation of nursing education on initiation of guideline-directed management of mechanically ventilated patients in the Emergency Department

Room C

Presenters: Lauren Mullen

TITLE: Evaluation of nursing education on initiation of guideline-directed management of mechanically ventilated patients in the Emergency Department

AUTHORS: Lauren Mullen, Stephanie Allen, Cassey Starnes, Ryan Green, Shaun Rowe

OBJECTIVE: Recognize the goals of pain and sedation management following mechanical ventilation in the ED setting

SELF ASSESSMENT QUESTION: Which of the following is a recommended intervention for a patient recently initiated on mechanical ventilation in the ED requiring sedation? A. Initiate patient on appropriate fluids to sepsis guidelines B. Initiate pain control to achieve provider-directed RASS score C. Initiate patient on appropriate antimicrobial therapy D. Initiate corticosteroid therapy to aid in respiratory distress

BACKGROUND: Evaluate if a pharmacist-led nursing education results in more timely initiation of guideline-directed pain and sedation management in mechanically ventilated patients in an Emergency Department (ED).

METHODOLOGY: This is a retrospective quasi-experimental cohort study evaluating the timeliness of initiation of a guideline-directed pathway for mechanically ventilated patients in the ED after pharmacist-led education of ED nurses. The intervention in September 2020 included ED nursing education by pharmacists followed by a washout period of one month. Education consisted of presentations during huddles, handouts, and screenshots of how to order the designated pathway for their patient in the electronic health record (EHR). Pre-intervention EHR data was collected from November 2018-June 2020 and post-intervention EHR data will be collected from November 2020 to February 2021.

RESULTS: In progress

CONCLUSIONS: In progress

I Impact of Early vs. Late vs. No Infectious Disease Consultation on the Treatment of Staphylococcus aureus Bacteremia

Room I

Presenters: Christopher Snider

TITLE: Impact of Early vs. Late vs. No Infectious Disease Consultation on the Treatment of Staphylococcus aureus Bacteremia

AUTHORS: Christopher Snider, Stephanie Milliken, Jessica Michal, Kyle Ames

OBJECTIVE: Identify potential interventions that can improve the management and outcomes of patients with SAB

SELF ASSESSMENT QUESTION: How has the timing of IDC impacted the management of SAB?

BACKGROUND: Staphylococcus aureus bacteremia (SAB) is associated with significant morbidity and mortality.

Earlier initiation of appropriate antibiotics and infectious disease consult (IDC) has demonstrated improved outcomes in patients with SAB; however, the optimal time to IDC after SAB diagnosis remains unclear. The aim of this project is to assess the percentage of adherence to best practice guidelines and the effect on clinical outcomes between early IDC (within 24 hours of positive culture), late IDC (24 hours or later after positive culture), and no IDC in the management of SAB. Best practice guideline components include: source identified, source controlled, transthoracic echocardiogram and/or transesophageal echocardiogram performed, repeat blood cultures drawn at least every 96 hours until negative for S. aureus, and antibiotic optimization.

METHODOLOGY: This retrospective cohort includes patients at least 18 years old at time of specimen collection who had one or more blood cultures with S. aureus collected between 01/01/2017 and 09/30/2020 at McLeod Regional Medical Center. Percent adherence to best practice guideline components were compared between the three groups. Time to microbiological clearance, duration of therapy, recurrence of SAB, length of stay, and 30-day all-cause mortality and readmission will be evaluated as secondary outcomes.

RESULTS: In Progress

CONCLUSIONS: In Progress

I Impact of rapid diagnostic blood culture identification panels on empiric use of broad-spectrum antimicrobials for select Gram-negative pathogens in a community hospital

Room H

Presenters: Tristyn Cartrette

TITLE: Impact of rapid diagnostic blood culture identification panels on empiric use of broad-spectrum antimicrobials for select Gram-negative pathogens in a community hospital

AUTHORS: Tristyn Cartrette, April Dyer, Eric Locklear

OBJECTIVE: Describe the impact of BIOFIRE BCID panels on antibiotic de-escalation times and appropriateness.

SELF ASSESSMENT QUESTION: Which of the following statements is FALSE?

BACKGROUND: To determine if the use of BIOFIRE Blood Culture Identification (BCID) panels reduces the median duration of unnecessary broad-spectrum antimicrobial agent use for patients with BCID results that are positive for select Gram-negative pathogens and to evaluate the safety of the empiric antimicrobial therapy selections on the BCID algorithm implemented by UNC Health Southeastern.

METHODOLOGY: This retrospective cohort study was conducted at UNC Health Southeastern and evaluated 30 patients from each of two time periods: pre-intervention phase that evaluates care for the study population prior to BCID intervention (April 1, 2019 – September 30, 2019) and post-intervention that evaluated the study population after BCID implementation (April 1, 2020 – September 30, 2020). The study included inpatients ≥ 18 years of age who had a positive blood culture for one of the following Gram-negative organisms: *E. coli*, *K. pneumoniae*, *K. oxytoca*, *P. aeruginosa*, *S. marcescens*. Patients were excluded if they had polymicrobial blood cultures or were growing additional organisms at other sites. Additional exclusion criteria included hospital discharge prior to BCID results or patients requiring additional antimicrobial therapy for another indication.

RESULTS: All study outcomes showed no statistical differences in optimal regimens within 48 hours or appropriate changes in therapy after BCID implementation. It was found that after BCID implementation patients were exposed to more antimicrobial agents, however time from blood draw to organism identification did decrease slightly.

CONCLUSION: The implementation of BCID panels did not improve the time to appropriate antimicrobial therapy for patients with monomicrobial bloodstream infections that were admitted to the hospital at UNC Health Southeastern. A prospective study after provider education is warranted to further assess if the implementation of BCID panels is effective in streamlining antimicrobial therapies.

<https://youtu.be/YQJ-RlaOk3g>

L Bleeding risk associated with dual antiplatelet therapy in percutaneous endoscopic gastrostomy tube placement

Room E

Presenters: Hannah Leschorn

TITLE: Bleeding risk associated with dual antiplatelet therapy in percutaneous endoscopic gastrostomy tube placement

AUTHORS: Hannah Leschorn, Stella Ye, Olivia Morgan

OBJECTIVE: Describe the bleeding risk associated with PEG tube placement while continuing P2Y12 inhibitor

SELF ASSESSMENT QUESTION: What were the differences in composite bleeding events among patients that had a P2Y12 inhibitor held vs. continued prior to PEG tube placement?

BACKGROUND: Percutaneous endoscopic gastrostomy (PEG) tubes are frequently recommended for patients with dysphagia or inadequate oral intake. It is common for patients undergoing PEG procedures to be on dual antiplatelet therapy (DAPT) with aspirin and a P2Y12 inhibitor for ischemic neurologic or cardiovascular indications. PEG placement on DAPT is not advised due to possible high endoscopy-induced bleeding risk with recommendations to hold P2Y12 inhibitors while continuing aspirin monotherapy at least 5 days prior to the procedure. Clinical practice may differ from these recommendations and there is limited literature on bleeding risk associated with continuation of DAPT peri-endoscopy.

METHODOLOGY: A single-center, retrospective, medical record review was conducted on patients who received ≥ 1 dose of DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, prasugrel, or ticagrelor) ≤ 8 days prior to PEG placement between July 1, 2017 – June 30, 2020. Patients were excluded if they received concomitant therapeutic anticoagulation 7 days leading up to PEG placement or in the 48 hours following the procedure.

RESULTS: A total of 74 patients (37 patients in the aspirin group, 37 patients in the aspirin + P2Y12 group) met inclusion criteria. The primary composite outcome of major and minor bleeding in patients receiving aspirin versus aspirin + P2Y12 were 3 (8.1%) and 5 (13.5%), respectively ($p = 0.454$). There was no significant difference in hospital length of stay between the two groups ($p = 0.116$). In patients undergoing PEG on aspirin monotherapy, 11.8% of patients were bridged with tirofiban.

CONCLUSIONS: There were no significant differences in composite bleeding rates among patients who underwent PEG placement on aspirin versus aspirin + P2Y12 inhibitor.

https://static.sched.com/hosted_files/2021southeasternresidency/df/SERC_DAPT%20in%20PEG_Leschorn.mp4

Presenters: Heather Dalton

TITLE: Evaluation of the Impact of a Pharmacy Transitions of Care Program

AUTHORS: Heather Dalton, Emily Moose, Molly Hinely

OBJECTIVE: Determine the impact of pharmacist-driven transitions of care inpatient rounding and post-discharge outreach on number of hospitalizations and emergency department visits

SELF ASSESSMENT QUESTION: What is the impact of a pharmacy transitions of care program on number of hospitalizations and emergency department visits?

BACKGROUND: Transitions of care has come to the forefront of healthcare systems around the United States, as reimbursement models have changed based on patient readmission rates. Research shows benefit of pharmacist-driven transitions of care on adherence, medication discrepancies, and adverse events. However, there is a lack of research regarding the impact of transitions of care pharmacists alone on hospitalizations, emergency department visits, and hospital-admission cost savings. The purpose of this study is to determine the impact of a pharmacist-driven transitions of care program at an academic medical center.

Transitional Inpatient Rounding Experience (TIRE) is a pharmacist-driven transitions of care program at Wake Forest, in which pharmacy residents provide motivational interviewing patients who are at a high-risk for readmission to identify causes of potential medication-related readmissions at discharge. They will then complete a post-discharge follow-up call to resolve medication related issues that may have occurred during transitions of care.

METHODOLOGY: A single-center, retrospective cohort study was conducted via a pre- and post- intervention analyses. The data collection periods included 30 and 90 days within the date of intervention. Patients were excluded if they were pediatric, hospice, discharging to a facility, died within 90 days of intervention, or did not have a hospitalization within 90 days prior to the intervention. The primary outcome is the 30-day number of hospitalizations, compared with the rate of hospitalizations occurring prior to the intervention. Secondary outcomes include 90-day number of hospitalizations, 30-day number of emergency department visits, 90-day number of emergency department visits, and hospital cost-savings through reduction of hospitalizations.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Emelia Beam

TITLE: Assessing the Need for A Pharmacist-Led Mental Health Service

AUTHORS: Emelia Beam, Patti Fabel

OBJECTIVE: The objective of this study is to assess the need for establishing pharmacist-led mental health services at an employer-based medical center and pharmacy.

SELF ASSESSMENT QUESTION: What is the most prescribed agent at the site?

BACKGROUND: Mental disorders are known to affect mental, behavioral, and emotional wellbeing.¹ The impact of a mental disorder depends on the individual, and their symptoms can vary from no impairment to severe impairment affecting daily activities. In the United States alone, about 46.6 million adults have a mental illness with only 43.3% receiving treatment.² It is important to manage and treat illness as it increases the risk of long-term conditions including heart disease and diabetes. With Covid-19, the risk of mental disorder has increased. To make sure that employees, spouses, and dependents' mental needs are met, we wanted to investigate what gaps in care, the percentage of individuals diagnosed with mental health, and on a psychotropic for treatment.

METHODOLOGY: Regarding this retrospective chart review, patients will be included if they received a prescription for a psychotropic agent or diagnosed with a mental disorder. The data for this study will be pulled from the electronic medical record. Data pulled will be from October to December 2020. Demographic information such as age, gender and race will be collected and will be used to evaluate the characteristics of employees, spouses, and dependents. Psychotropics agents and mental disorder diagnoses will collected as well. Data from the pulled reports will be analyzed using descriptive statistics measures of central tendency and variability to determine frequency and percentages. Secondary endpoint that will be evaluated as well will be the prescription patterns of providers onsite, as well as comparing and contrasting mental health disorders and diabetes in term of prescriptions filed and associated cost

RESULTS: Anxiety disorder was the most common diagnosis requiring a psychotropic agent. Stress and sleep disorders were some of the most common diagnoses found in our study. Of note, Escitalopram was the most prescribed agent for the treatment of mental disorder. Cost associated with mental disorder was also analyzed, and our study found a roughly 30% increase from 2019 to 2020, the largest increase aside from infections due to COVID-19.

CONCLUSIONS: There is a need for a mental health service at the site. Anxiety disorder is a prevalent mental disorder treated at the site. Based on this, we can target mental health services to focus on patients with an anxiety diagnosis at as a starting point.

B Evaluation of Pharmacist-Driven Remote Patient Monitoring (RPM) in a Primary Care Setting Within a Community Health System during the Covid-19 Global Pandemic

Room K

Presenters: Kristen Pierce

TITLE: Evaluation of Pharmacist-Driven Remote Patient Monitoring (RPM) in a Primary Care Setting Within a Community Health System during the Covid-19 Global Pandemic

AUTHORS: Kristen Pierce, Melissa Johnson, Allison Presnell, Kelsey Martin, Beth Clements, Ashley Woodhouse

OBJECTIVE: After this presentation, the participant will define the financial effect of pharmacist-performed RPM in our health system.

SELF ASSESSMENT QUESTION: Which code is commonly used to bill for remote patient monitoring?

BACKGROUND: Remote Patient Monitoring (RPM) is used to prevent patient care gaps and optimize clinical outcomes using digital interfaces. This service is not tele-health therefore does not require a designated originating site in rural regions and can be provided to patients at home. In March 2019, pharmacists gained the ability to provide services billed incident-to physician or non-physician practitioner. When Medicare Physician Fee Schedule (PFS) aligned with the Public Health Emergency (which decreased face to face patient care) and stated only general supervision was required, RPM became an attractive opportunity for pharmacists to expand patient care for their supervising physicians and St. Joseph's/Candler (SJC) pharmacists utilized this opportunity beginning in March 2020 after privileges for RPM were expanded by the health system.

METHODOLOGY: This retrospective, observational study evaluated encounters of patients contacted for RPM. A computer-generated list identified 99457 RPM codes billed by SJC Primary Care from April 1st to September 30th, 2020. Subjects were identified through eClinicalWorks. Encounters were evaluated based on disease state and intervention.

RESULTS: Using average estimated revenue of \$49.50 per 99457, SJC revenue increased by approximately \$5,400 during 109 encounters. Pharmacists were involved in 72% of encounters and generated around \$3,800. Diabetes was encountered most often (64 patients) and interventions completed most frequently included medication initiations and dosage increases.

CONCLUSIONS: RPM within primary care offices of community health-systems provides another viable option to promote patient care and generate revenue. Annual updates to the PFS can change requirements to any HCPCS or CPT code. The 2021 update for RPM services requires at minimum, a real-time synchronous, two-way audio interaction that is capable of being enhanced with data transmission. Utilizing pharmacists to provide this service is a unique opportunity to provide pharmacist value in a virtual health care setting.

Link to presentation - <https://www.youtube.com/watch?v=PJEjpVXBmT4>

C The Incidence of Venous Thromboembolism After Heart Transplantation

Room D

Presenters: Katherine Anderson

TITLE: The Incidence of Venous Thromboembolism After Heart Transplantation

AUTHORS: Katherine Anderson, Chris Larkin, Robin Tagatz, Caroline Gatzke, Kyle Stribling, Ashok Babu

OBJECTIVE: Identify the incidence of VTE in heart transplant recipients and compare efficacy of prophylaxis methods.

SELF ASSESSMENT QUESTION: How does the risk of VTE in heart transplant recipients at ASTW compare to previous literature and should more aggressive prophylaxis measures be used?

BACKGROUND: VTE is a common postoperative complication following non-minor surgical procedures, leading to increased morbidity and mortality. The incidence of VTE after heart transplantation has been reported as high as 9.3%. Current guidelines for VTE prophylaxis in heart transplant patients are unclear, most being non-specific to transplantation. The lack of clear recommendations and the high bleeding risk during surgery leads to reluctance to prescribe pharmacologic prophylaxis.

METHODOLOGY: Medical records were reviewed following discharge for patients who underwent heart transplantation at Ascension Saint Thomas Hospital West (ASTW) between May 1, 2016 and September 30, 2020. Patients were excluded if they required postoperative full-dose anticoagulation, except for postoperative VTE, or if they had a heart transplant in conjunction with another organ.

RESULTS: The incidence of VTE at ASTW was 13%, and most patients experiencing an upper extremity DVT (58%). Sequential compression devices (SCDs), were ordered for all patients. Of the 89 patients included, 2 patients received both SCDs and pharmacologic prophylaxis. One characteristic associated with VTE was the use of hemostatic agents intraoperatively. Thirty-three percent of patients who received recombinant factor VII developed a VTE postoperatively. Also, patients who had longer lengths of stay prior to transplantation were more likely to develop a VTE.

CONCLUSIONS: The incidence of VTE after heart transplantation at ASTW is higher than that reported in the literature, indicating that a more aggressive approach to VTE prophylaxis may be necessary.

<https://youtu.be/5yxXzQpmXl4>

Presenters: Ashley Hall

TITLE: Impact of Eat, Sleep, Console Process on Morphine Usage in Neonatal Abstinence Syndrome

AUTHORS: Ashley Maegan Hall

OBJECTIVE: The purpose of this study was to determine the impact of a novel therapeutic algorithm in the treatment of infants with neonatal abstinence syndrome (NAS).

SELF ASSESSMENT QUESTION: Will implementation of the Eat, Sleep, Console (ESC) protocol reduce morphine utilization for treatment of NAS compared with use guided by Finnegan scores?

BACKGROUND: Utilization of the symptom-based Finnegan Neonatal Abstinence Scoring System (FNASS) for guidance of NAS treatment is associated with increased hospital length of stay (LOS) and pharmacologic initiation. Implementation of the novel ESC protocol, which evaluates the patient's functional ability, has demonstrated beneficial reductions in these outcomes via emphasis on non-pharmacologic treatment. The aim of this study was to evaluate how implementation of the ESC protocol impacted morphine utilization and duration of hospitalization for patients with NAS.

METHODOLOGY: This was a retrospective study comparing therapeutic interventions and outcomes of NAS patients guided by the ESC protocol to those guided by FNASS scores. The ESC protocol was implemented at our facility June 1, 2020. A pre-implementation cohort included patients born at the facility between June 1 and December 31, 2019 who received morphine for treatment of NAS or had a drug screen indicative of opioid exposure. A post-implementation cohort included patients born at the facility between June 1 and December 31, 2020 who were treated utilizing the ESC protocol. Patients receiving morphine for any other indication were excluded from the study. The primary endpoint was duration of morphine therapy. Secondary endpoints included quantity of morphine doses administered, maximum morphine dose required, and LOS.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presentation Link: <https://youtu.be/bDZJkrSEKcw>

Presenters: Sara A. Scott

TITLE: Risk factors for hypoglycemia in critically ill surgical patients on an insulin infusion

AUTHORS: Sara A. Scott; Kelli Rumbaugh

OBJECTIVE: To describe risk factors for hypoglycemia while receiving an insulin infusion

SELF ASSESSMENT QUESTION: Acute kidney injury is a risk factor for severe hypoglycemia while on an insulin infusion (True/False)?

BACKGROUND: Glycemic control in critically ill surgical patients has been shown to decrease post-operative infections and potentially decrease mortality, while hyperglycemia and glucose variance have been associated with increased mortality in this population. The insulin infusion protocol at Vanderbilt University Medical Center (VUMC) has demonstrated significantly less severe hypoglycemia (blood glucose 18 years old admitted to the surgical intensive care unit or cardiovascular intensive care unit and initiated on an insulin infusion between January 1, 2018 and July 31, 2020. The primary outcome was the incidence of severe hypoglycemia (BG < 40 mg/dL), and a logistic regression analysis will be used to assess independent predictors for severe hypoglycemia. Secondary outcomes included the incidence of at least one BG greater than 180 mg/dL, between 150 to 180 mg/dL, between 70 to 150 mg/dL, and less than 70 mg/dL and the absolute number of BG values in these ranges, glucose variance, ICU mortality, hospital mortality, ventilator-free days, and protocol violations. All statistics were performed using SPSS version 26. Categorical values were analyzed using chi-square and continuous values using Mann-Whitney U.

RESULTS: In progress

CONCLUSIONS: In progress

Video Link: https://youtu.be/Bumh-U6uM_0

I **Evaluating Characteristics and Outcomes of COVID-19 Inpatients Treated at the Ralph H. Johnson VAMC**

Room H

Presenters: Allison Kuhn

TITLE: Evaluating Characteristics and Outcomes of COVID-19 Inpatients Treated at the Ralph H. Johnson VAMC

AUTHORS: Allison Kuhn, David Deen, Katherine Pleasants, David Taber

OBJECTIVE: Describe the clinical characteristics and outcomes of COVID-19 inpatients treated at the Ralph H. Johnson VA Medical Center (RHJ VAMC)

BACKGROUND: The purpose of this quality improvement initiative was to evaluate the clinical characteristics and outcomes of COVID-19 inpatients with a focus on ICU admission status and timing of remdesivir initiation in relation to symptom onset.

METHODOLOGY: A retrospective chart review was performed to identify clinical characteristics and outcomes in hospitalized patients diagnosed with COVID-19 at RHJ VAMC between April 1 and September 30, 2020. A sub-group analysis including patients who received remdesivir was performed to identify potential differences in clinical outcomes.

RESULTS: One hundred six inpatients with confirmed COVID-19 were hospitalized from April 1 to September 30, 2020; 45 patients (42%) were admitted to the ICU during hospitalization. Those admitted to the ICU had higher systolic and diastolic blood pressures at admission and throughout hospitalization, higher D-dimer values at presentation, and higher D-dimer and procalcitonin peak values compared to inpatients not admitted to the ICU.

66 inpatients (62%) received remdesivir. Those admitted to the ICU received remdesivir a median of 7 days after initial symptom onset, compared to 4 days for non-ICU patients.

Each day that passes from the start of symptom onset to remdesivir initiation increases the risk of an ICU admission by 9.6%. Initiating remdesivir more than 7 days after symptom onset increases the odds of ICU admission by 3.6 times and death during hospitalization by 11.5 times.

CONCLUSIONS: Delayed remdesivir initiation increases the risk of ICU admission and death during hospitalization.

SELF ASSESSMENT QUESTION: Which of the following are factors that can increase a patient's risk of COVID-19 disease progression?

I **VANCOMYCIN AUC24/MIC DOSING PILOT USING BAYESIAN CALCULATOR SOFTWARE PROGRAM IN A SINGLE-CENTER COMMUNITY HOSPITAL**

Room I

Presenters: Katherine Olsen

VANCOMYCIN AUC24/MIC DOSING PILOT USING BAYESIAN CALCULATOR SOFTWARE PROGRAM IN A SINGLE-CENTER COMMUNITY HOSPITAL

Katherine A Olsen PharmD, Jessica Space, PharmD BCIDP, Dumitru Sirbu, PharmD

Ascension St. Vincent's Birmingham Hospital-Birmingham, AL

Background/Purpose: Investigate feasibility and safety of a Bayesian vancomycin calculator as the primary vancomycin dosing and monitoring system at Ascension St. Vincent's Birmingham in accordance with IDSA's standards of vancomycin dosing.

Methodology: Eligible adults who had intravenous vancomycin consults for pharmacy dosing with infectious indications other than meningitis/ventriculitis were dosed via a subscription Bayesian vancomycin calculation software during a three week trial. Patient data, information on AUC based dosing, and rates of acute kidney injury were collected. Acute kidney injury data was compared to previous trough-based vancomycin consults. Pharmacists were asked to complete surveys on consult completion time and satisfaction to identify implementation obstacles.

Results: The average time taken for completion of a vancomycin consultation with the AUC based dosing versus trough based dosing were 14.07 minutes and 9.47 minutes, respectively. Ten pharmacists filled out a user survey. Of the ten, nine of them felt that the Bayesian software recommendations were safe.

Conclusions: A Bayesian vancomycin AUC based dosing was trialed for three weeks. There was overall pharmacist satisfaction with the Bayesian software. Barriers of implementation of a Bayesian vancomycin software included mindset change, interprofessional education, and pharmacist training.

T Transitions of care pharmacist impact on readmission and use of a novel readmission risk assessment tool in hospitalized heart failure (HF) patients Room A

Presenters: Arrington Mason-Callaway

TITLE: Transitions of care pharmacist impact on readmission and use of a novel readmission risk assessment tool in hospitalized heart failure (HF) patients

AUTHORS: Arrington D. Mason-Callaway, Quwana Clemons

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the predictive value of the LAMPS score for 30-day HF readmission in comparison to the predictive value of the mLACE score and describe the contribution of TOC pharmacist intervention in preventing HF readmission.

SELF ASSESSMENT QUESTION: The LAMPS scoring tool incorporates both clinical and socioeconomic parameters to predict 30-day readmission risk. TRUE/FALSE (Answer: TRUE)

BACKGROUND: There is an unmet need for an effective scoring tool, incorporating clinical and socioeconomic parameters, with robust predictive power of 30-day readmission risk for an acute exacerbation of HF. The purpose of this study is to compare the predictive value for 30-day HF readmission risk of a novel assessment tool (LAMPS) versus the modified-LACE scoring tool among HF patients discharged from a community hospital following admission for an acute HF exacerbation. This study will also capture the contribution of transitions of care (TOC) pharmacist interventions in preventing HF readmission.

METHODOLOGY: This is a single-center, retrospective, randomized chart review of adult patients (N = 200) admitted to Wellstar Cobb Hospital with an acute HF exacerbation from January 1, 2019 to December 31, 2019. Patients with primary International Classification of Diseases (ICD-10) codes for acute exacerbation of HF or new HF diagnosis will be identified using the electronic medical record and risk for HF readmission will be assessed using both the LAMPS and modified-LACE scoring tool. The primary endpoints are the positive and negative predictive value of readmission with an acute HF exacerbation within 30 days of discharge from the index encounter. The secondary endpoint is the incidence of readmission with an acute HF exacerbation within 30 days of discharge from the index encounter in patients who received TOC pharmacist services (≥ 1 of the specified TOC pharmacist activities) versus those who did not receive TOC pharmacist services.

RESULTS: In progress

CONCLUSIONS: In progress

A Development, Implementation, and Evaluation of an Inpatient Warfarin Management Education Program for Pharmacists in a Community Hospital Room G

Presenters: Felix Okotete

TITLE: Development, Implementation, and Evaluation of an Inpatient Warfarin Management Education Program for Pharmacists in a Community Hospital

AUTHORS: Felix Okotete, Jae Yook, Katy Walton, Jamie McCarthy

OBJECTIVE: Describe the development and implementation of the IWME program and identify its impact in inpatient warfarin management for pharmacists.

SELF ASSESSMENT QUESTION: Which component(s) of the assessment did show statistically significant improvement after the implementation of the IWME program?

BACKGROUND: Multiple dynamic factors make warfarin management a challenge when optimizing its dosing. In our hospital, clinical pharmacists manage warfarin past the initial dose verification. The purpose of this study is to develop, implement, and evaluate an inpatient warfarin management education (IWME) program for staff pharmacists.

METHODOLOGY: This single-center, pre-post interventional cohort study included full-time staff pharmacists who had documented at least one initial warfarin consult note in the electronic medical record between December 15, 2019 and February 15, 2020. A program was developed for education about general knowledge, management, and counseling of warfarin. An assessment was created to compare between pre- and post-intervention groups. The primary outcome was the composite score of multiple-choice questions, patient cases, and counseling. Secondary outcomes included individual components of the assessment and a self-assessed competency survey. Subsequently, randomly selected initial warfarin consult notes were compared.

RESULTS: The composite score was approximately 6 points higher in the post-intervention group than in the pre-intervention group (median [IQR] composite score out of 72 points: post-intervention 49.44 [44.35-56.13] points vs pre-intervention 43.81 [36.86-45.59] points, $p=0.002$). The post-intervention group scored 14% higher in multiple-choice questions ($p=0.02$) and 54% higher in counseling ($p=0.002$). The self-assessed competency survey score was 1 point higher in the post-intervention group (median [IQR] survey out of 5 points: post-intervention 3 [2-3] points vs pre-intervention 2 [2-2] points, $p=0.026$). While the post-intervention group documented indications 21% more correctly in initial consult notes ($p=0.036$), other data showed no difference.

CONCLUSIONS: The IWME program improved pharmacists' performance on the assessment and increased competence in inpatient warfarin management. Further education in initial consult note documentation is desired.

Video Recording of Presentation: www.youtube.com/watch?v=ELSiZ0mVxZw

Presenters: Anna Love

TITLE: Pharmacist-driven antidiabetic medication de-escalation in patients with well controlled diabetes

AUTHORS: Anna Love, Brian Leonard, Blake Johnson

OBJECTIVE: Explain pharmacist role in de-escalating antidiabetic medications for patients with well controlled diabetes.

SELF ASSESSMENT QUESTION: Which scenario would be the least appropriate for pharmacist intervention to de-escalate antidiabetic medications? A. Patient on insulin and sulfonylurea with A1c of 6.3% B. Patient who also has heart failure on metformin and empagliflozin with A1c of 6.5% C. Patient on metformin, DPP4, and GLP-1 with A1c of 6.4%

BACKGROUND: Expenditures on patients with diabetes account for over \$320 billion of United States health care costs and continues to rise. While hyperglycemia and associated effects account for a significant portion of these costs, it is also important to consider the cost of overly controlled patients with diabetes. Specifically, the effects of hypoglycemia and unnecessary medications contribute to this economic burden. The role for pharmacist in managing uncontrolled diabetes is well established, proving reduction of A1c is greater in pharmacist managed groups compared to usual care. Unfortunately, the role for pharmacists in patients with overly controlled diabetes is less defined. Thus, this study's purpose is to evaluate pharmacists' involvement in the de-escalation of therapy for patients below their A1c goals.

METHODOLOGY: Ambulatory Care Pharmacists at our center are currently provided with quality metrics data from third party insurers regarding quality performance measures. Pharmacists use the data provided to work in conjunction with the respective providers to develop, implement, and monitor pharmacotherapy plans to ultimately improve the quality of care provided. Ambulatory Care Pharmacists continue to follow patients not meeting quality metrics with insurers until care has been optimized. This project is designed to evaluate the impact of Ambulatory Care Pharmacists retrospectively on the quality measures data with assessments at three-month intervals from the index pharmacist intervention.

This study is a retrospective chart review of pharmacist recommended de-escalation in antidiabetic medication regimen. Patients with diabetes with a A1c \leq 6.5% who had at least one pharmacist recommended de-escalation in antidiabetic medication regimen are included. Patients are excluded if $<$ 18 years old, pregnant, or Type 1 Diabetic. The primary outcome is change in hypoglycemic events (reported via clinic correspondence, hospitalization with chief complaint of hypoglycemia, and/or Emergency Department visit for hypoglycemia). Secondary outcomes include medication cost difference to patient and/or payer, maintenance of A1c goal, and any adverse effects other than hypoglycemia experienced during the study period.

<https://youtu.be/n2uIHtwVEOQ>

Presenters: Leanne Lagroon

TITLE: Apixaban versus warfarin for the treatment of venous thromboembolism in morbidly obese patients

AUTHORS: Leanne Lagroon, Madeleine Tilley, Lisa Gibbs

OBJECTIVE: Evaluate the clinical outcomes of apixaban compared to warfarin in the treatment of VTE in morbidly obese patients.

SELF ASSESSMENT QUESTION: What is the maximum weight/BMI for apixaban as recommended by the 2016 ISTH guidelines?

BACKGROUND: Direct oral anticoagulants (DOACs) have become increasingly popular choices for the treatment of venous thromboembolism (VTE) over the past decade. DOACs offer many advantages over warfarin including a lower incidence of bleeding, ease of fixed dosing, and a lack of routine monitoring requirements. However, few studies have evaluated the safety and efficacy of DOACs in morbidly obese patients.

METHODOLOGY: This single-center retrospective chart review compared morbidly obese adult patients diagnosed with a VTE and treated with apixaban to those treated with warfarin. The primary endpoint was VTE recurrence within 12 months. Secondary outcomes include pulmonary embolism or deep vein thrombosis individually in the first 12 months, major bleeding or clinically relevant minor bleeding defined by ISTH criteria, mortality, and switch to another anticoagulant.

RESULTS: 58 patients were included in the study. 15 received warfarin and 43 patients received apixaban. 2 patients (13.3%) in the warfarin group and 3 patients (6.98%) in the apixaban group experienced a recurrent VTE ($p=0.596$). 2 (13.3%) vs 1 (2.3%) patients experienced a clinically relevant minor bleed ($p=0.161$). The patients in the warfarin group had a significantly higher BMI (50.7 kg/m² vs 43.9 kg/m² [$p=0.036$]) and weight (150 kg vs 130.3 kg [$p=0.039$]) than the patients in the apixaban group.

CONCLUSIONS: There was no statistically significant difference in recurrent VTE between patients taking warfarin and apixaban. Although not statistically significant, patients taking warfarin trended towards higher rates of major and clinically relevant minor bleeding.

Presenters: Devin Josey

TITLE: Early versus Delayed Weight-Based Basal Insulin in Diabetic Ketoacidosis

AUTHORS: Devin Josey, Kristen Womble-Smith

OBJECTIVE: At the conclusion of my presentation, the participant will be able to explain if the addition of early weight-based basal insulin has a benefit in patients with diabetic ketoacidosis.

SELF ASSESSMENT QUESTION: Does early weight-based basal insulin reduce the time to anion gap closure in diabetic ketoacidosis?

BACKGROUND: The purpose of this study is to assess the current diabetic ketoacidosis protocol at Southeastern Regional Medical Center to determine if early administration of basal insulin in conjunction with a regular insulin infusion will reduce the time to anion gap closure, intensive care unit length of stay, hypoglycemic episodes, and evaluate the rate of rebound hyperglycemia and diabetic ketoacidosis.

METHODOLOGY: Patients were assigned to receive either standard therapy with a continuous regular insulin infusion (per institution approved protocol) or interventional therapy with a continuous regular insulin infusion (per protocol) and early weight based basal insulin. The weight-based dose was 0.25 units per kilogram and the basal insulin utilized was insulin glargine (Lantus). Basal therapy must have been initiated within 6 hours of the start of the insulin infusion. Patients were excluded if pregnant, on mechanical ventilation, had septic shock, were surgical patients, had chronic renal disease requiring hemodialysis, had severe chronic lung disease requiring corticosteroids, or were COVID-19 positive.

RESULTS: 32 of 52 patients evaluated met inclusion criteria. Of these patients, 26 were assigned to the standard therapy arm and 6 were assigned to the intervention arm. The primary outcome (rebound diabetic ketoacidosis) occurred in 6 patients (23.1%) in the standard therapy arm and 1 patient (16.7%) in the intervention arm ($P=0.84$). Time to anion gap closure was not significantly different between the two groups, with averages of 9.5 hours in the standard therapy arm and 6.9 hours in the intervention arm ($P=0.27$).

CONCLUSIONS: Early administration of basal insulin in conjunction with an insulin infusion did not have a significant reduction in rebound hyperglycemia and DKA, time to anion gap closure, intensive care unit length of stay, or hypoglycemic episodes.

https://youtu.be/QgfN5V5e6_k

Presenters: Stuart Pope

<https://youtu.be/SXYhMJtH1cw>

TITLE: Evaluation of the safety of lactulose for the treatment of hepatic encephalopathy in patients with decompensated cirrhosis

AUTHORS: Stuart Pope; Alley Killian; Peter Moran; Ram Subramanian

OBJECTIVE: Identify potential safety concerns of lactulose use in patients with acute on chronic liver failure

SELF ASSESSMENT QUESTION: Is lactulose use associated with a higher incidence of ileus in patients with acute on chronic liver failure?

BACKGROUND: Hepatic encephalopathy (HE) is a common complication seen in end stage liver disease, is characterized by a variety of neurological abnormalities, and is associated with poor prognosis. Lactulose is commonly used as first line treatment for HE in cirrhotic patients. However, there is limited, if any, data regarding the safety of lactulose for the treatment of HE in the acute-on-chronic liver failure (ACLF) patient population. Lactulose poses several risks to critically ill patients, including ileus formation, metabolic and electrolyte derangements, and hypovolemia. Thus, this retrospective cohort analysis will compare the safety of lactulose-containing versus non-lactulose-containing medication regimens for the treatment of HE in patients admitted with ACLF.

METHODOLOGY: A retrospective cohort review of adult patients who were admitted to the surgical/transplant ICU at Emory University Hospital with ACLF and received treatment for hepatic encephalopathy. The primary objective for this study is the incidence of gastrointestinal complications. Secondary objectives include metabolic disturbances and ICU/hospital length of stay.

RESULTS: The lactulose-containing group experienced a statistically significant higher rate of GI complications (34% v. 20%, p -value 0.03), likely driven by an increased incidence of ileus formation. Metabolic disturbances were more likely to occur in the non-lactulose-containing group. Patient-specific outcomes such as length of stay and mortality did not differ between groups.

CONCLUSIONS: Our study demonstrated that lactulose is associated with a higher incidence of GI complications in patients who are admitted to an ICU with decompensated cirrhosis. This finding may contribute to practice changes at our institution; however, prospective trials are needed to investigate the causative relationship between lactulose and GI complications in this patient population.

R Mannitol use for moderate to severe intracranial hemorrhage in the emergency department prior to intracranial pressure monitoring: retrospective chart review

Room D

Presenters: Laura Hamaker

TITLE: Mannitol use for moderate to severe intracranial hemorrhage in the emergency department prior to intracranial pressure monitoring: retrospective chart review

AUTHORS: Laura Hamaker, Anna Bush, Maura Hall

OBJECTIVE: Determine if mannitol use in intracranial hemorrhage prior to ICP monitoring in the ED is safe and effective.

SELF ASSESSMENT QUESTION: Which study group had a higher risk of mortality at baseline?

BACKGROUND: Assess the efficacy and safety of mannitol administration in the emergency department (ED) for moderate to severe intracranial hemorrhage prior to intracranial pressure (ICP) monitoring.

METHODOLOGY: Single center, retrospective chart review of patients presenting to the ED with moderate to severe intracranial hemorrhage from Jan 01, 2017 to Oct 31, 2020. Patients were included if they were ≥ 18 years old with a Glasgow Coma Scale (GCS) score < 13 . Patients with an initial GCS score of 3 or who were transferred to another facility were excluded. The primary outcome was improvement in GCS score from initial presentation to discharge. Incidence of extravasation was recorded. Descriptive statistics were used to analyze data.

RESULTS: A total of 61 patients were included in this study with 33 and 28 patients in the mannitol and control group, respectively. Baseline characteristics were similar in both treatment groups with a few exceptions. The presence of midline shifts and intraventricular hemorrhages were higher in the mannitol group predicting a worse prognosis for these patients at baseline. GCS scores improved by 0.8 and 1.3 in the mannitol and control group, respectively. In-hospital mortality was 51.5% in the mannitol group and 42.9% in the control group. Hospital length of stay was longer in the mannitol group by 3 days. There were no reports of extravasation in the mannitol group.

CONCLUSIONS: The mannitol group had less improvement in GCS scores at discharge; however, this group had a higher risk of mortality at baseline. This study was also limited by a small sample size. Further research is needed to determine the efficacy of mannitol in moderate to severe intracranial hemorrhage prior to ICP monitoring.

I Identification of clinical factors that determine empiric antibiotic use in preterm neonates with low risk of early onset sepsis

Room H

Presenters: Kirbie Bostick

TITLE: Identification of clinical factors that determine empiric antibiotic use in preterm neonates at low risk of early onset sepsis

AUTHORS: Kirbie M. Bostick, Kathryn B. Brown, Valana Vannoy, Daniel B. Chastain

OBJECTIVE: Describe clinical factors that characterize preterm infants as low risk of early onset sepsis

SELF ASSESSMENT QUESTION: Which of the following would not classify a preterm infant as low risk of early onset sepsis?

BACKGROUND: Early onset sepsis (EOS) has high morbidity and mortality risk, but presentation of EOS makes it difficult to distinguish symptoms of sepsis from typical problems associated with prematurity. The treatment of EOS in term neonates has well-established guidelines, and clinicians may utilize a validated sepsis risk calculator for making clinical decisions. Unfortunately, while guidelines for the management of EOS exist for pre-term infants (<34 6/7 weeks), they are ambiguous as to the appropriate use of empiric antibiotics in low risk infants, and the sepsis risk calculator cannot be used in this population.

METHODS: This was a single center retrospective observational study. Patients were excluded if they were considered high risk for EOS based on infant/maternal risk factors. Risk factors included intrapartum fever >37.5 °C, administration of intrapartum antibiotics, prolonged or premature rupture of membranes, or chorioamnionitis. Infants were stratified based on administration of antibiotics, and clinical characteristics and demographic information were gathered. Individual variables were analyzed using either Wilcoxon rank sum, chi squared, or fisher's exact test. Predictors of antibiotic use in this population were determined using multivariable-adjusted logistic regression.

RESULTS: In progress

CONCLUSION: In progress

I **Improvement of antibiotic prescribing for outpatient community acquired pneumonia in the emergency department**

Room I

Presenters: Sarah Jesse

TITLE: Improvement of antibiotic prescribing for outpatient community acquired pneumonia in the emergency department

AUTHORS: Sarah Jesse, Patrick Blankenship, Fern Pruss, Lauren Ladd, Madison Iman

OBJECTIVE: Identify potential interventions to improve discharge antibiotic prescribing for outpatient community acquired pneumonia in the emergency department.

SELF ASSESSMENT QUESTION: What are potential interventions that can improve discharge antibiotic prescribing for community acquired pneumonia in the emergency department?

BACKGROUND: The Infectious Diseases Society of America (IDSA) guideline on the treatment of community acquired pneumonia (CAP) was updated in October of 2019. In response to this update, two emergency department-centered interventions were made to facilitate incorporation of the new recommendations into practice. These interventions included targeted, physician-led education, and an ED discharge pathway that was implemented to guide optimal antibiotic selection. This project aims to assess the impact of these interventions on rates of appropriate discharge antimicrobial prescribing for CAP treated in a community hospital emergency department.

METHODOLOGY: In this IRB-approved retrospective chart review, antibiotic prescriptions for adults discharged from the ED with a diagnosis of CAP were analyzed for appropriateness based on the 2019 IDSA CAP guidelines. Those discharged between November 1st and December 1st, 2019 comprised the pre-intervention cohort, and patients discharged January 1st to February 1st, 2020, the post-intervention cohort. The primary outcome was to compare the proportion of patients discharged on appropriate antibiotic therapy before and after the intervention period. Proportions of treatment failure and treatment-associated adverse effects (TAAEs) were also compared.

RESULTS: 62 patients were included in the final analysis (19 in the pre- and 43 in the post-intervention group). Antibiotic prescriptions were deemed appropriate in 16% and 30% of cases in the pre- and post-intervention periods respectively [difference 14% (95% CI -0.07 to 0.35) $p=0.17$]. There were no significant differences in treatment failures or adverse events observed.

CONCLUSIONS: Although not statistically significant, provider education combined with a discharge pathway was associated with a 14% increase in appropriate antibiotic prescribing for CAP in the ED.

LINK TO PRESENTATION:

<https://tennessee.zoom.us/rec/share/Kbi82fzwjgnXUfSPwEIM5cK0oLZpzJATTdewXlftsPdtzclg2PyoHroviF1J05vc.EnEz6DtzguRf>

I **Procalcitonin and antibiotic use in patients with coronavirus disease 2019**

Room J

Presenters: Katie McCrory

TITLE: Procalcitonin and antibiotic use in patients with coronavirus disease 2019

AUTHORS: Katie McCrory, Kristen Paciullo, Ronald Tribble, and William Bender

OBJECTIVE: Describe the impact of serum procalcitonin (PCT) levels on antibiotic prescribing patterns in patients with coronavirus disease 2019 (COVID-19).

SELF ASSESSMENT QUESTION: Does PCT assist in determining appropriateness of antibiotic therapy in patients with COVID-19?

BACKGROUND: Current available literature reports rates of bacterial coinfections in patients hospitalized with coronavirus disease 2019 (COVID-19) to be low, however, the majority of these patients receive empiric antibiotics. The purpose of this study was to determine the impact of serum procalcitonin (PCT) levels on the prescribing patterns of antibiotic therapy in patients with COVID-19 at a single-center institution.

METHODOLOGY: A retrospective chart review was performed on patients who were admitted for treatment of COVID-19 during the first and second peaks of the virus (April 1, 2020 to June 30, 2020 and July 1, 2020 to September 30, 2020). The primary outcome analyzed was duration of antibiotic therapy in patients who had the following: no PCT level collected, normal initial PCT level (< 0.5 ng/mL), and elevated initial PCT (≥ 0.5 ng/mL).

RESULTS: Of the 170 patients analyzed, 22% percent ($n=37$) had no PCT level, 62% ($n=106$) had a normal initial PCT, and 16% ($n=27$) had an elevated initial PCT. The average duration of antibiotic therapy was 0.7 days in the group with no PCT, 4.5 days in the group with a normal initial PCT, and 9.4 days in the group with and elevated initial PCT ($p=0.005$). Although not statistically significant, the proportion of patients with positive bacterial cultures in the elevated PCT group was larger compared to the lower PCT group. The negative predictive value of PCT for this data set was 82.1%.

CONCLUSIONS: Serum PCT had a significant impact on antibiotic prescribing during the second peak of COVID-19 at this institution. The high negative predictive value seen emphasized that PCT was helpful in clinical decision-making.

VIDEO LINK: https://youtu.be/keGaa_6yjxE

N The Impact of CGRP inhibitors on patient reported monthly migraine days at a safety-net, academic medical center Room F

Presenters: Millad J Sobhanian

TITLE: The Impact of CGRP inhibitors on patient reported monthly migraine days at a safety-net, academic medical center

AUTHORS: Millad J Sobhanian, Jessica K Ringler, Amy Perez, Olivia Morgan

OBJECTIVE: Evaluate the impact of calcitonin gene related peptide (CGRP) inhibitors in the real world setting

SELF ASSESSMENT QUESTION: What is a common characteristic of responders to CGRP inhibitors?

BACKGROUND: CGRP inhibitors show promising efficacy and safety for migraines based on clinical studies. At our institution a clinical pharmacist works with patients and providers to educate and improve access to these therapies. Data for use is limited to structured clinical trials. The purpose of this project is to assess the impact of these agents in the 'real-world setting' and evaluate the role of a clinical pharmacist on outcomes.

METHODOLOGY: This is a single-center, retrospective chart review of patients initiated on a CGRP inhibitor between 7/1/2019 to 4/31/2020 receiving at least a single dose of therapy with any documented follow-up within 6 months after initiation. Our primary outcome was the reduction in monthly migraine days (MMD) pre and post CGRP inhibitor initiation. We also looked at the distribution and characteristics of responders (defined as >50% reduction in MMD from baseline) and non-responders.

RESULTS: We included 46 patients in our analysis. A majority of patients were prescribed erenumab (89%) with 61% receiving clinical pharmacy services. There was a significant reduction in mean MMD of 7 days ($p < 0.01$) after therapy initiation with 52% of patients defined as responders. In the responders group there was a significantly higher number of patients receiving pharmacist assistance and a non-significant trend towards more responders using rescue triptan therapy. Adverse effects occurred in 5 patients, with 4 resulting in discontinuation of therapy.

CONCLUSIONS: CGRP inhibitors are safe and effective in our patient population. Additionally, clinical pharmacists can have a significant impact on patient outcomes by improving access and educating patients on proper use. Larger studies are needed to further characterize responders to therapy and guide initiation of CGRP inhibitors.

Presentation link: https://drive.google.com/file/d/1E_siY1SJ-ewi4AnjE4U9_g40P_hrUXCL/view?usp=sharing

O Real world analysis of tumor lysis syndrome in patients started on venetoclax combination for acute myeloid leukemia Room A

Presenters: Karin Abernathy

TITLE: Real world analysis of tumor lysis syndrome in patients started on venetoclax combination for acute myeloid leukemia

AUTHORS: Karin Abernathy, Matt Perciavalle, Katie Gatwood, Michael Byrne, Matt Zakhari

OBJECTIVE: Describe the risk of tumor lysis syndrome in AML patients started on venetoclax combination

SELF ASSESSMENT QUESTION: True or false. The majority of patients initiated on venetoclax combination for AML will experience TLS.

BACKGROUND: Venetoclax is an oral antineoplastic agent utilized in combination with low dose cytarabine (LDAC) or a hypomethylating agent (HMA) for treatment of acute myeloid leukemia (AML). Clinical trials report a risk of developing tumor lysis syndrome (TLS) during the venetoclax dose ramp-up. The purpose of this study was to evaluate the risk of TLS in AML patients in a large population outside the context of a tightly controlled clinical trial and to evaluate the incidence of hospital-acquired complications during the inpatient ramp-up admission.

METHODOLOGY: We performed a retrospective study of adults with AML receiving at least one dose of venetoclax with a HMA or LDAC. The primary outcome was the incidence of TLS. Secondary outcomes included risk factors for development of TLS, length of admission, and incidence of hospital-acquired complications.

RESULTS: Of 128 patients evaluated, 113 were included. The incidence of TLS was 8.8% (10 patients). All were laboratory TLS; one with hyperuricemia, 9 with hypocalcemia (median 6.8mg/dL, range 5-7), and 10 with hyperphosphatemia (median 5.3mg/dL, range 4.5-6). 6 patients received intervention with sevelamer. TLS occurred at a median of day 2. No clinical TLS occurred. Baseline white blood cells (WBC) were greater than 25,000/mm³ before initiation in 14.2% of patients with 18.8% (3) of those experiencing TLS. 3 of 5 patients considered high-risk for development experienced TLS. Length of admission and hospital-acquired complications analyses are ongoing.

CONCLUSIONS: TLS was uncommon in this study. The majority of patients with TLS had minor abnormalities in phosphorus and calcium that were non-severe. WBC may be an indicator of risk and TLS incidence. Patients with elevated WBC should be admitted for monitoring while it may be feasible to otherwise initiate venetoclax in the outpatient setting. Further analysis is ongoing.

Presenters: Gaybrielle Moore

TITLE: Safety of High-Intensity Atorvastatin with Sofosbuvir/Velpatasvir during Hepatitis C Virus Treatment

AUTHORS: Gaybrielle Moore, Ryan Ford, Katherine Fuller

OBJECTIVE: Describe the clinical impact of concomitant use of sofosbuvir/velpatasvir and high-intensity atorvastatin

SELF ASSESSMENT QUESTION: True or False. Concomitant use of high-intensity atorvastatin and sofosbuvir/velpatasvir resulted in clinically significant statin-related ADRs and statin discontinuations.

BACKGROUND: Sofosbuvir/velpatasvir increases the concentration of atorvastatin, and patients should be monitored for statin-related adverse drug reactions (ADRs) per the package insert. Clinically, providers often decrease atorvastatin to ≤ 20 mg to minimize the risk of ADRs while on hepatitis C virus (HCV) treatment. This study evaluated the clinical effects of high-intensity atorvastatin and sofosbuvir/velpatasvir coadministration.

METHODOLOGY: Patients ≥ 18 years of age, prescribed sofosbuvir/velpatasvir by an Emory hepatology provider between September 1, 2016, and August 31, 2020, and concurrently taking atorvastatin 40 mg or 80 mg were eligible for inclusion in this IRB-approved chart review. Patients were excluded if sofosbuvir/velpatasvir was prescribed by an external provider or never started. The primary outcome was the incidence of statin-associated ADRs while on HCV treatment. Secondary outcomes included the rate of atorvastatin discontinuation due to ADRs, incidence of sofosbuvir/velpatasvir-related ADRs, rates of sustained virologic response ≥ 12 weeks (SVR12) after treatment end, and mean number of drug interactions per patient.

RESULTS: Seventeen patients were included. Of these, 76.5% had history of an atherosclerotic cardiovascular disease (ASCVD) event and 23.5% had hyperlipidemia. No statin-related ADRs or statin discontinuations occurred.

The mean number of drug interactions per patient was 1.9.

CONCLUSIONS: Concomitant use of high-intensity atorvastatin and sofosbuvir/velpatasvir may be considered given the results of this study. Pharmacists are uniquely positioned to evaluate medication appropriateness and manage drug interactions.

Link to presentation: <https://youtu.be/Z2ULBFEqAaQ>

Presenters: Buzz Custer

TITLE: Implementation of MTM Services within a Community Pharmacy Associated with a Large Academic Medical Center

AUTHORS: Buzz Custer, Amanda D'Ostroph, Kristy Kenney, B. Kyle Hansen, Regina Schomberg, Andrea Luebchow, Kathy Bricker

OBJECTIVE: Identify barriers to completion of MTM opportunities in a health system community-based pharmacy.

SELF ASSESSMENT QUESTION: What did the study identify as barriers to completion of MTM opportunities in a health system community-based pharmacy?

BACKGROUND: Evaluate the implementation of Medication Therapy Management (MTM) services within a large health system community-based pharmacy.

METHODOLOGY: This IRB-approved study was conducted at one of nine community pharmacy locations owned and operated by Wake Forest Baptist Health. MTM services were implemented in this location through workflow adjustments and use of a contracted MTM platform. The platform identifies patients appropriate for potential pharmacist intervention. These can include a comprehensive medication review (CMR) or targeted intervention program (TIP), which can include adherence assessment, patient education, medication assessment, or potential refill opportunity.

MTM service feasibility was evaluated by the number of completed MTM opportunities within the MTM platform. Pharmacists documented barriers to completing MTM opportunities (e.g., time, proper training, patient availability, etc.) were documented after each encounter.

RESULTS: The study included 22 MTM opportunities. Of the 22 attempted, 15 were completed successfully (i.e., intervention accepted). Eight of the opportunities were CMRs and 14 were TIPs. Successful completion was achieved in 75% of the CMRs and 60% of TIPs. There were 20 post-opportunity barrier surveys completed. A total of \$466 was associated with the 22 MTM opportunities with CMRs generating the most revenue.

CONCLUSIONS: MTM services were successfully implemented within typical workflow of a community pharmacy associated with a large academic medical center. TIPs were the most common MTM opportunity attempted; however, CMRs had a greater rate of successful completion. Revenue generated was greatest amongst CMRs. Imprecise documentation of time spent precluded a return-on-investment analysis. The most common barriers identified were related to patient lack of understanding for MTM intervention and pharmacist training in certain clinical areas. <https://youtu.be/dexjWdCIXBg>

Presenters: Chelsea Jennings

Video Link: <https://youtu.be/VlzOZmeMFUQ>

TITLE: Evaluation of Heparin Dosing in the Setting of Impella® Percutaneous Ventricular Assist Devices

AUTHORS: Chelsea Jennings, Tyler Chanas

OBJECTIVE: Describe anticoagulation practices observed in patients with Impella devices.

SELF ASSESSMENT QUESTION: How is heparin used in patients with Impella devices to achieve therapeutic ACT targets?

BACKGROUND: Anticoagulation in patients with Impella devices is complex and wide variation in clinical practice has been observed. Both a heparin based purge solution and systemic heparin are commonly seen in practice though primary literature is limited in characterizing their use. The purpose of this study was to evaluate heparin use among patients with Impella devices in an effort to guide anticoagulation practices.

METHODOLOGY: This single center, retrospective, observational review, included adult patients admitted to Vidant Medical Center between July 1, 2015 and June 30, 2020 who received a left or right sided Impella device for at least 12 hours, and unfractionated heparin with monitoring based on ACT values. Patients were excluded if they had any contraindication to heparin use. The primary endpoint was cumulative heparin rate at the time of initial therapeutic ACT (defined as 160-180s). Secondary endpoints included time to therapeutic ACT, time from Impella start to the addition of systemic heparin, initial, maximum, and minimum ACT values in patients not receiving systemic heparin, and initial rate of systemic heparin.

RESULTS: Of 118 patients identified for analysis, 52 met inclusion criteria. Primary reasons for exclusion were Impella placement less than 12 hours and heparin monitoring based on aPTT values. At time of initial therapeutic ACT a median total heparin dose of 617.5 IU/hr was found (IQR 382.5 - 841.3). Secondary endpoint results were as follows: median time to goal ACT (hours) 3.9 (IQR 1.1 - 6.4), median time to addition of systemic heparin (hours) 6.8 (IQR 2.9 - 10.6), median values for initial/maximum/minimum ACT while not on systemic heparin (seconds) 202/224/150 (IQR 180 - 235.5/191.5 - 320/138 - 160).

CONCLUSIONS: Findings from this study successfully characterized anticoagulation practices with heparin at a single institution over an extended time period. There was found to be a significant patient population that required the addition of systemic heparin to reach goal ACT targets. Wide variability in the amount of heparin required to reach goal ACT was seen and ACT targets were often met prior to the initiation of systemic heparin though not often sustained. Given current literature deficits in this clinical area further study is warranted.

Presenters: Sydney FINDER

TITLE: Five versus ten units of intravenous insulin for hyperkalemia in patients with moderate renal dysfunction

AUTHORS: Sydney FINDER, Linda McLaughlin, Ryan C. Dillon

OBJECTIVE: Describe the relative incidence of hypoglycemia and mean change in serum potassium when using 5 versus 10 units of insulin for hyperkalemia in patients with moderate renal dysfunction

SELF ASSESSMENT QUESTION: (True/False): Administration of 10 units versus 5 units of IV insulin for hyperkalemia in patients with moderate renal dysfunction is associated with no difference in the incidence of hypoglycemia, but has greater potassium lowering effects

BACKGROUND: Initial treatment of hyperkalemia often includes an attempt to shift potassium intracellularly with 10 units of intravenous (IV) insulin. Since insulin is renally cleared, giving 10 units of IV insulin has been shown to cause hypoglycemia in patients with renal dysfunction. While 5 units of IV insulin has been widely accepted for treatment of hyperkalemia in those with end stage renal dysfunction (eGFR < 15 mL/min/m²), there is little data for patients with moderate renal dysfunction (eGFR 15-59 mL/min/m²). The purpose of this study was to examine the incidence of hypoglycemia and mean change in serum potassium in patients with moderate renal dysfunction receiving 5 versus 10 units of IV insulin for treatment of hyperkalemia.

METHODOLOGY: This was a single center, retrospective study conducted at Vanderbilt University Medical Center. Adult patients with moderate renal dysfunction who received IV insulin for treatment of hyperkalemia were included. Patients were grouped based on whether they received 5 or 10 units of IV insulin and were excluded if they had dialysis within 6 hours of insulin administration, did not have a repeat blood glucose value within 6 hours of the initial BMP, or had only hemolyzed potassium lab results. The primary outcome was the rate of hypoglycemia, defined as a blood glucose of ≤70 mg/dL. Secondary outcomes included rate of severe hypoglycemia and relative potassium lowering effects.

RESULTS: In progress

CONCLUSIONS: In progress

<https://www.youtube.com/watch?v=eZ2Wyx17y8>

Presenters: John Brannon

TITLE: VTE prophylaxis strategies in COVID-19 positive ICU patients

AUTHORS: John Brannon, Tonya Thomas, Michelle Wilcox

OBJECTIVE: Compare the differences in the incidence of VTE and major bleeding in patients who received high intensity anticoagulation prophylaxis vs standard prophylaxis.

SELF ASSESSMENT QUESTION: How did patient outcomes compare when using high intensity or standard dosing to prophylactically anticoagulant patients.

BACKGROUND: The purpose of this study is to determine which anticoagulation prophylaxis dosing strategies are associated with less venous thromboembolisms (VTE) and major bleeding in COVID-19 ICU patients.

METHODOLOGY: This study is a retrospective chart review of adult patients who were treated for COVID-19 in the intensive care units at Ascension Saint Thomas West, Midtown, and Rutherford hospitals between March 1, 2020 and December 31, 2020. Patients must have been treated with either high intensity prophylactic anticoagulation or standard prophylactic anticoagulation. Patients were excluded if any of the following occurred less than 24 hours after admission to the ICU: transfer out of the ICU, confirmed VTE, or patient expired.

RESULTS: One hundred and twenty patients were included in the study. 62 patients received high intensity prophylaxis and 58 received standard prophylaxis. Between the high intensity and standard prophylaxis there was no statistical difference in VTE (6% vs 5% $p=1$) or major bleeding events (8% vs 5%, $p=0.718$). There was also no statistical difference in mortality, percentage of patients requiring intubation, survivor length of stay, or ICU length of stay.

CONCLUSIONS: There was no statistically significant difference in the rate of VTE or major bleeding between patients who received high intensity anticoagulation prophylaxis and those who received standard prophylaxis.

I **Evaluation of FilmArray® Blood Culture Identification (BCID) and TheraDoc® Utilization at a VA Health Care System (HCS)**

Presenters: Madison Treadway

TITLE: Evaluation of FilmArray® Blood Culture Identification (BCID) and TheraDoc® Utilization at a VA Health Care System (HCS)

AUTHORS: Madison Treadway, Bailey Guest, David Rudd, and Kelly Sugarman

OBJECTIVE: To evaluate FilmArray® BCID and TheraDoc® utilization at the Salisbury VA HCS and its impact on the time to initiation of appropriate antimicrobial therapy.

SELF ASSESSMENT QUESTION: How did BCID and TheraDoc® utilization affect time to appropriate antimicrobial therapy?

BACKGROUND: Prompt initiation of appropriate antimicrobial therapy is critical in patients with bacteremia. The Salisbury VA HCS uses FilmArray® BCID, which identifies 24 bacterial and fungal pathogens including 3 resistance genes within approximately one hour with more than 90% accuracy, and TheraDoc®, which has antimicrobial stewardship capabilities, to expedite antimicrobial decisions. The purpose of this study is to evaluate the timeliness of appropriate antimicrobial therapy initiation based on positive BCID results at the Salisbury VA HCS.

METHODOLOGY: This was a retrospective, quality-improvement chart review. Subjects eligible to be included were Veterans at the Salisbury VA HCS with positive BCID results from 5/1/18-7/31/20 from TheraDoc®. The primary objective was identifying average time for appropriate antimicrobial therapy to be initiated on Veterans without or not on appropriate antimicrobial therapy from the time of BCID positivity. Key secondary objectives included identifying average time to de-escalation and contributors to delays of antimicrobial initiation.

RESULTS: 75 Veterans were included in the study with average age of the sample being 68 years. Of those included, 64 (85%) were on appropriate antimicrobial therapy and 11 (15%) were on inappropriate or no therapy at the time of BCID results. The average time to appropriate therapy was 22 hours and 50 minutes, with time to provider order entry being the largest contributor. If BCID results occurred during business hours, time to appropriate therapy was nearly 30 hours shorter. The average time to de-escalation for those on appropriate therapy was 44 hours and 35 minutes.

CONCLUSIONS: Utilization of FilmArray® BCID and TheraDoc® can reduce time to appropriate antimicrobial therapy; however, a larger sample size needs to be studied.

Video Link

I **Predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving outpatient parenteral antibiotic therapy** Room H

Presenters: Jenna Ingram

TITLE: Predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving outpatient parenteral antibiotic therapy

AUTHORS: Jenna Ingram, Caroline Derrick, P. Brandon Bookstaver

OBJECTIVE: List predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving OPAT.

SELF ASSESSMENT QUESTION: What factors are associated with non-therapeutic vancomycin concentrations post-discharge in patients receiving OPAT?

BACKGROUND: Patients receiving outpatient parenteral antimicrobial therapy (OPAT) with vancomycin often have non-therapeutic drug concentrations at initial follow-up. The proportion of patients with non-therapeutic vancomycin concentrations at initial follow-up were assessed and predictors for non-therapeutic concentrations post-discharge in patients receiving OPAT were analyzed.

METHODOLOGY: This was a retrospective, cohort study among patients ≥ 18 years of age discharged from a Prisma Health Midlands hospital between January 2017 and October 2020 on IV vancomycin for ≥ 1 week. Patients on dialysis or those lost to follow-up were excluded. Non-therapeutic vancomycin concentrations were defined as an AUC/MIC outside of target range (400-600 mg/h*L). Univariate analysis and multivariable regression analysis were used to determine factors associated with initial non-therapeutic vancomycin concentrations.

RESULTS: A total of 45 patients were included in this IRB-approved study, with 19 (42%) patients in the therapeutic group and 26 (58%) in the non-therapeutic group. Of the non-therapeutic patients, 15 (58%) were supratherapeutic at initial follow-up. Moderate to severe renal disease was associated with non-therapeutic concentrations (OR = 5.33, $p = 0.135$). Patients with non-therapeutic concentrations had their vancomycin dose adjusted an average of 1 day closer to discharge than those with therapeutic concentrations (1.5 vs. 2.4, $p = 0.192$). Those with non-therapeutic concentrations were more likely to experience emergency department (ED) visits (OR = 2.59, $p = 0.203$) and acute kidney injuries (AKI) (OR = 2.67, $p = 0.399$) with both of these being more common amongst the supratherapeutic group.

CONCLUSIONS: Non-therapeutic vancomycin concentrations at initial outpatient follow-up are common. While there were no statistically significant predictors identified, patients with non-therapeutic concentrations were more likely to experience ED visits and AKI. Transitions of care are important for all patients receiving vancomycin. Further prospective investigation is warranted. <https://youtu.be/GMUVXDQKFpl>

I **The Use of Empiric Antibiotics in COVID-19 Patients** Room J

Presenters: Alexia Greene

TITLE: The Use of Empiric Antibiotics in COVID-19 Patients

AUTHORS: Alexia Greene, Christina Thurber, Heather Gibson, Andrew Kessell

OBJECTIVE: Evaluate the antimicrobial therapy used in COVID-19 patients admitted to a community hospital

SELF ASSESSMENT QUESTION: Which of the following empiric therapies would be considered in a COVID-19 positive patient with a procalcitonin of 0.5?

BACKGROUND: Severe acute respiratory syndrome coronavirus 2, known as SARS-CoV2, is a virus that caused an outbreak of a novel disease called coronavirus disease 19 (COVID-19). After contracting the disease, through respiratory droplets, patients present with varying severity from severe respiratory symptoms to asymptomatic. For those presenting to the hospital with respiratory symptoms, antimicrobial therapy is a common treatment modality. The clinical question is whether these respiratory symptoms are also indicative of a bacterial pneumonia co-infection and require antimicrobial therapy. Current literature suggests that empiric antimicrobial therapy is started in COVID-19 patients despite reports of co-infections occurring in only 2-46% of them. The objective of this study is to evaluate the antimicrobial therapy used in COVID-19 patients admitted to a community hospital.

METHODOLOGY: A retrospective observational study will be conducted to evaluate the use of antibiotic therapy and length of therapy in COVID-19 patients presenting to Moore Regional Hospital between April 1, 2020 and August 31, 2020. Patients will be included if they are: 18 years or older, diagnosed with COVID-19, and received empiric antibiotic therapy within 2 days of admission. Patient's demographics, severity of disease at admission, cultures, procalcitonin level, oxygen saturation, temperature, administered antibiotic regimen, and length of antibiotic therapy will be obtained from the electronic medical record. Patients who were less than 18 years old and pregnant will be excluded.

RESULTS: In progress

CONCLUSIONS: In progress

L UTILIZING ENOXAPARIN FOR PROPHYLACTIC VERSUS THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH COVID-19 Room E

Presenters: Miranda McGee

TITLE: UTILIZING ENOXAPARIN FOR PROPHYLACTIC VERSUS THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH COVID-19

AUTHORS: Miranda McGee, Megan Lail, Ann Maxwell, Kelsey Shamblen

OBJECTIVE: Determine the safety of enoxaparin prophylactic versus therapeutic dosing in patients with COVID-19.

SELF ASSESSMENT QUESTION: In what patient population(s) would prophylactic dose enoxaparin be more beneficial than therapeutic dose enoxaparin?

BACKGROUND: Hypercoagulation in patients with COVID-19 has been shown to increase mortality and lead to a greater severity of illness. The ideal anticoagulation regimen for venous thromboembolism (VTE) prophylaxis is not yet clear. The purpose of this study was to evaluate the safety and efficacy of prophylactic versus therapeutic dose enoxaparin in patients with COVID-19.

METHODOLOGY: This study was a retrospective cohort study including patients 18 years and older with COVID-19 who received enoxaparin during their admission. Patients were excluded if they were pregnant or required anticoagulation at baseline. Patients were considered to have received prophylactic dose enoxaparin if their highest anti-Xa level during admission was less than 0.6 int'l units/mL and considered to have received therapeutic dose enoxaparin if their highest anti-Xa level was 0.6 int'l units/mL or greater. The primary endpoint was the incidence of major or minor bleeds. The secondary endpoints were incidence of VTE and the duration and dose of enoxaparin therapy prior to development of bleeding or VTE.

RESULTS: In progress

CONCLUSIONS: In progress

O Impact of prophylactic intrathecal chemotherapy on central nervous system relapse in patients with AIDS-Related B-Cell Lymphoma Room A

Presenters: Mary Haley Ellis

TITLE: Impact of prophylactic intrathecal chemotherapy on central nervous system relapse in patients with AIDS-Related B-Cell lymphoma

AUTHORS: Mary Ellis, Joseph Torrisi, Julianna Cebollero, Jennifer LaFollette, Marjorie Curry

OBJECTIVE: Describe the role of IT chemotherapy in the treatment of patients with ARLs

SELF ASSESSMENT QUESTION: What treatment should be added to systemic chemotherapy to prevent CNS relapse in ARLs?

BACKGROUND: Evaluate the impact of intrathecal (IT) chemoprophylaxis in patients with AIDS-related lymphomas (ARLs) at a large urban academic medical center.

METHODOLOGY: A single-center, retrospective, medical record review was conducted for patients diagnosed with an ARL between May 2013 and December 2019 who received at least one cycle of first-line chemotherapy (EPOCH, HyperCVAD or CHOP with or without rituximab). Patients were excluded if they had Central nervous system (CNS) disease at diagnosis, received only pre-phase chemotherapy or CNS involvement was unable to be determined.

RESULTS: Of the 39 patients included, 56% were black males with a median age of 40 years. The primary diagnoses were diffuse large B-cell lymphoma (DLBCL) 51% (n=20), Burkitt lymphoma (BL) 31% (n=12), and plasmablastic lymphoma 18% (n=7) and 64% (n=25) had high-risk NHL at baseline. R-EPOCH (n=15) and R-HyperCVAD (n=11) were the most common regimens administered. Two patients (5%) had CNS relapse. One patient had plasmablastic lymphoma, received 4 doses of IT chemoprophylaxis and had CNS relapse 161 days after diagnosis. The other patient had BL, did not receive IT chemoprophylaxis and had CNS relapse 126 days after diagnosis. IT chemoprophylaxis was administered to 77% of patients (n=30/39). Of those who received IT chemoprophylaxis, 53% (n=16/30) received at least 4 doses and 67% (n=20/30) received alternating doses of cytarabine and methotrexate.

CONCLUSIONS: At our institution, 5% of patients experienced CNS relapse which is comparable to previously published data in patients with AIDS-related B-Cell lymphomas. Consistent with guideline recommendations, the majority of patients received at least 4 alternating doses of cytarabine and methotrexate.

Video Link: <https://drive.google.com/file/d/1ewv7aEfebYmCu7seb6M1gRtjOsA4fCl4/view?usp=sharing>

Presenters: Kayla Evans

TITLE: Impact of tacrolimus trough variability on acute rejection in lung transplant recipients

AUTHORS: Kayla Evans, Kristi Beermann, Holly Berry, Hui-Jie Lee, Hakim Azfar Ali

OBJECTIVE: Describe the importance of tacrolimus variability in lung transplant recipients

SELF ASSESSMENT QUESTION: Tacrolimus is associated with significant inter- and intra-patient pharmacokinetic variability: true or false

BACKGROUND: Acute rejection (AR) is a risk factor for the development of chronic lung allograft dysfunction (CLAD), the leading cause of morbidity and mortality in lung transplant (LT) recipients. Prevention of AR with a calcineurin inhibitor, cell cycle inhibitor, and corticosteroid is considered the standard of care following LT. Emerging data in the kidney, liver, and heart transplant literature suggest an association between high intra-patient tacrolimus variability and acute and chronic rejection. This study aimed to evaluate the impact of high tacrolimus trough variability, using coefficient of variation, on acute cellular rejection in the first year following LT.

METHODOLOGY: This is a retrospective study of adults who received a primary LT at Duke University Hospital between January 2014 and September 2018. Patients received basiliximab induction and survived with a functioning graft for at least 12 months. Patients who received multi-organ transplant, antithymocyte globulin induction, belatacept, or desensitization therapies were excluded. The primary endpoint is total acute rejection score (TRS), defined as the sum of biopsy scores within 12 months post-transplant where A0=0, A1=1, A2=2, A3=3, A4=4 and B=1 only if A=0. Secondary endpoints include development of donor-specific antibodies, antibody-mediated rejection, CLAD, graft loss and death within 24 months post-transplant.

RESULTS: 231 patients were included. The average age was 55 years, 67.1% were male, 90.9% were white, 57.1% had underlying restrictive lung disease, and 81.8% received a bilateral lung transplantation.

CONCLUSIONS: The average patient was a 55 year-old white male with underlying restrictive lung disease receiving bilateral lung transplantation.

Presenters: Ann Truong

TITLE: Impact of a Pharmacist-Led COPD Service at a Hospital-Based, Indigent-Care Clinic

AUTHORS: Ann Truong, Jennifer Hayes, Lori Hornsby

OBJECTIVE: Evaluate the impact of a pharmacist-led COPD service on optimizing guideline-directed pharmacotherapy, adherence, medication costs, and proper inhaler technique in addition to reducing COPD symptoms and improving overall quality of life

SELF ASSESSMENT QUESTION: Does having a pharmacist-led COPD service at a hospital-based, indigent care clinic improve patient outcomes and quality of life?

BACKGROUND: Chronic Obstructive Pulmonary Disease (COPD) affects millions of Americans and is currently the third leading cause of death in the United States with estimated healthcare costs of approximately 50 billion dollars annually. Many patients with COPD do not receive guideline-recommended pharmacotherapy and/or do not utilize proper inhaler technique, which leads to more frequent hospitalizations and greater morbidity and mortality. Indigent patients are at higher risk due to increased exposure to COPD risk factors. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines recommend an interdisciplinary approach to managing COPD, and pharmacists have demonstrated positive outcomes in COPD management due to their unique skillset and pharmacotherapy expertise. In order to provide more focused COPD management at a hospital-based, indigent care clinic, a pharmacist-led COPD service will be established. Impact on COPD-related outcomes will be evaluated.

METHODOLOGY: The primary outcome is the change in percentage of patients on guideline-recommended pharmacotherapy pre- and post-intervention. Secondary outcomes include change in smoking and vaccination status, inhaler technique, adherence, symptom scores, exacerbations, and hospitalizations as well as cost reduction and number of pharmacist interventions. After obtaining informed consent, patients are initially scheduled for an in-person appointment followed by 2-4-week follow-up visits. The components of the primary and secondary outcomes are assessed at each visit.

RESULTS: In progress

CONCLUSIONS: In progress

B Outcomes Associated with Direct Oral Anticoagulant Use in Patients with Non-Valvular Atrial Fibrillation and Obesity

Room K

*Presenters: Jamie Coates***TITLE:** Outcomes Associated with Direct Oral Anticoagulant Use in Patients with Non-Valvular Atrial Fibrillation and Obesity**AUTHORS:** Jamie Coates, Emily Bitton, Ashley Hendje, Tom Delate, Kari Olson, Sara Ly**OBJECTIVE:** Compare outcomes of patients with obesity and non-valvular atrial fibrillation (NVAF) who received direct oral anticoagulant (DOAC) therapy to those not obese.**SELF-ASSESSMENT:** Why do current guidelines not recommend DOAC use in patients weighing >120kg?**BACKGROUND:** DOACs have been compared to warfarin in several trials in patients with NVAF and generally found to be safer and more efficacious. Patients with obesity were mostly excluded from these studies.**METHODS:** This was a retrospective, matched, longitudinal, multi-site, cohort study. Patients were included if between September 1, 2016 and June 30, 2019 they were ≥ 18 years of age with a diagnosis of NVAF, received a DOAC (index date = date of dispensing), and had at least 180 days of health plan membership prior to the index date. Patients with and without obesity were matched up to 1:6 on age, sex, and CHA2DS2-VASc score. Obesity was defined as >120 kg using the weight recorded closest to the index date. Study data were extracted from administrative databases and through manual chart reviews. The primary outcome was a composite of systemic embolism, ischemic stroke, major bleeding, and all-cause mortality. Patients were followed until the first occurrence of primary outcome, termination of health plan membership, switch to different/stopped anticoagulant, or June 30, 2020.**RESULTS:** A total of 777 patients with obesity were matched to 3522 patients without obesity, all taking dabigatran. The obese group tended to be younger with a higher burden of chronic disease. Patients with obesity experienced a higher rate of gastrointestinal bleeding (HR 1.44, 95% CI 1.01-2.05).**CONCLUSION:** NVAF patients with obesity on dabigatran had an increased incidence of gastrointestinal bleeding. However, there was no statistically significant difference in the composite outcome, which helps support the use of dabigatran in patients with obesity.**PRESENTATION:** <https://youtu.be/Axt0aEz3vLU>**Y IMPACT OF IMPLEMENTATION OF A TRIAGE PHARMACIST ROLE ON CLINICAL INTERVENTION ACTIVITIES IN A SPECIALTY PHARMACY CALL CENTER**

Room G

*Presenters: Christine Barthen***TITLE:** IMPACT OF IMPLEMENTATION OF A TRIAGE PHARMACIST ROLE ON CLINICAL INTERVENTION ACTIVITIES IN A SPECIALTY PHARMACY CALL CENTER**AUTHORS:** Christine Barthen, Jen Young, Kathy Bricker, Helen Northrup, Kyle Hansen**OBJECTIVE:** Describe the impact of a triage pharmacist role on clinical intervention activities in a specialty pharmacy call center.**SELF ASSESSMENT QUESTION:** What is one way the triage pharmacist role impacted patient care?**BACKGROUND:** Assess the impact of a triage pharmacist role on clinical intervention activities within a specialty call center. A clinical intervention activity is defined as a situation that requires escalation to a pharmacist.**METHODOLOGY:** A single-center retrospective chart review of all clinical intervention activities completed in the Specialty Pharmacy Call Center from May 1, 2018 to April 30, 2019 and from July 1, 2019 to June 30, 2020, before and after the implementation of the triage pharmacist role. Therigy Insights (Orlando, FL) reporting was used to collect data including date clinical intervention activity was opened, date clinical intervention activity was completed, therapeutic category, clinical intervention category, Patient Care Plan activities, and patients discontinued from specialty pharmacy services. The primary endpoint of this study was time to clinical intervention completion.**RESULTS:** A total of 1521 (391 pre-triage and 1130 post-triage) clinical intervention activities were included in this IRB-approved study. Average time to clinical intervention completion decreased by 1.1 days ($p=0.002$). Time to first outreach attempt decreased by 0.68 days ($p<0.05$). Patient Care Plans created and acceptance of clinical interventions remained approximately the same ($p=0.608$ and $p=0.937$, respectively). There was a significant effect on time to clinical intervention completion among therapeutic categories, clinical intervention categories, and clinical outcome categories ($p=0.011$, $p=0.012$, $p<0.05$, respectively). After implementation of the triage pharmacist role, discontinuation from specialty pharmacy services increased ($p=0.004$). <https://youtu.be/yNKEb3dkQXo>

R Comparison of Diltiazem Dosing on Successful Rate Control or Cardioversion in the Emergency Department

Room C

Presenters: Casey Boyer

TITLE: Comparison of Diltiazem Dosing on Successful Rate Control or Cardioversion in the Emergency Department

AUTHORS: Casey Boyer, Kara Fifer, John Patka, Michelle Lall

OBJECTIVE: Identify optimal dosing of diltiazem in acute supraventricular arrhythmias.

SELF ASSESSMENT QUESTION: What are the pitfalls of inappropriate diltiazem dosing?

BACKGROUND: Atrial fibrillation guidelines recommend non-dihydropyridine calcium channel blockers as first line agents in ventricular rate control. However, diltiazem is often prescribed at doses less than the FDA-approved labeling of 0.25 mg/kg, potentially exposing patients to additional pharmacological agents. The aim of this study was to compare the safety and efficacy of diltiazem doses administered in the emergency department (ED) for supraventricular arrhythmias.

METHODOLOGY: A retrospective chart review was performed in adult patients receiving an initial intravenous diltiazem bolus in the ED for an acute supraventricular arrhythmia with a heart rate of at least 120 beats per minute. Patients were excluded if they received diltiazem for an indication other than supraventricular arrhythmia or received any rate or rhythm controlling agents prior to diltiazem. Patients were stratified to an on-label dosing group (at least 0.2 mg/kg) and off-label dosing group (<0.2 mg/kg). The primary outcome was treatment response within 30 minutes as a composite of rate control (heart rate rate of less than 100 beats per minute or at least 20% reduction from baseline) and cardioversion (resultant normal sinus rhythm).

RESULTS: A total of 85 patients were included in the analysis. Seventy-two percent of patients (26/36) in the on-label dosing group met the primary outcome compared to 57% of patients (28/49) in the off-label dosing group. The rate of hypotension was similar between groups.

<https://www.youtube.com/watch?v=6j3LbfClrwl>

R Evaluation of compliance with guideline recommendations in adult patients with diabetic ketoacidosis and hyperosmolar hyperglycemic state management in a rural, primary care hospital system

Room D

Presenters: Fay Creathorn

TITLE: Evaluation of compliance with guideline recommendations in adult patients with diabetic ketoacidosis and hyperosmolar hyperglycemic state management in a rural, primary care hospital system

AUTHORS: Fay Creathorn, PharmD; John Norris, PharmD, BCPS, BCCCP; Matt Bamber, PharmD, MBA, BCCCP

OBJECTIVE: In order to adequately manage these conditions, treatment regimens must be provided in a timely manner. Recognizing the difference between the two hyperglycemic classifications and how to treat each condition is crucial to optimizing patient outcomes. Once a patient has been diagnosed and a regimen has been initiated, it is important to closely monitor and adjust treatment to meet and maintain the specific parameters. Ensuring transitions of medical care between the emergency department, intensive care units, and medical floors, is essential in patients meeting therapeutic goals and reducing healthcare burden. The objective of this study is to evaluate the adherence to guideline metrics of our facility.

SELF ASSESSMENT QUESTION: How closely does our hospital adhere to guideline recommendations when treating DKA and HHS patients?

BACKGROUND: The most recent American Diabetes Association (ADA) guidelines include treatment strategies for diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS), however, they were published in 2009. Since then, newer primary literature and review articles have made further recommendations on optimizing outcomes and reducing the healthcare burden in a patient presenting with one of the two hyperglycemic episodes. In the United States, emergency department (ED) admissions for DKA and HHS increased 6.3% and ~1%, respectively, per year from 2009 through 2014. The rise in incidence has caused an expected rise in healthcare utilization, as well as, cost.

METHODOLOGY: A retrospective, observational chart review will be conducted to assess the management of DKA or HHS in patients presenting to FirstHealth Moore Regional Hospital between March 1st, 2020 and September 30th, 2020. Patients diagnosed with DKA or HHS and placed on insulin infusion for management will be included. Data elements that will be evaluated include insulin infusion and duration; potassium, phosphate, sodium, chloride, bicarbonate, albumin and magnesium levels; arterial blood gas; amount of fluid boluses administered and maintenance fluid rate; and presence of altered mental status. Patients who are less than 18 years old, pregnant, who received insulin therapy for a diagnosis other than DKA or HHS and renal failure patients on hemodialysis.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Samuel Pavlichek

TITLE: Evaluation of Thromboembolic Events After SARS-CoV-2 Infection

AUTHORS: Samuel Pavlichek, John Carr, Susan Smith, Dylan Daniels, Bruce M. Jones

OBJECTIVE: Identify the rate at which thromboembolic events happen after inpatient admission for COVID-19

SELF ASSESSMENT QUESTION: What treatment increases the risk of thromboembolism in patients with COVID-19?

BACKGROUND: COVID-19 is known to induce a hypercoagulable state. Current guidelines do not recommend the routine use of anticoagulation in COVID-19 patients after discharge. The purpose of this study was to evaluate readmissions for thromboembolic events within 90 days in patients who were diagnosed with COVID-19.

METHODOLOGY: This was a retrospective analysis of adult inpatients diagnosed with an ICD-10 code indicating COVID-19 from 1/1/2020 through 10/2/2020, and followed for a 90-day period for readmission. Patients were excluded if they had a history of thromboembolism or receipt of therapeutic anticoagulation prior to COVID-19 diagnosis. The primary outcome was hospital readmission for thromboembolic event within 90-days. Key secondary outcomes included the effect of COVID-19 therapeutics on thromboembolism, and incidence of any thromboembolic event within 90-days of COVID-19 diagnosis.

RESULTS: There were 650 patients who met inclusion/exclusion criteria. The primary outcome occurred in 4 patients (0.6%). Any thrombosis occurred in 8.9% (n=58). These were made up of 33% pulmonary emboli (PE), 48% deep vein thromboses (DVT), 7% cerebrovascular accidents, and 12% mixed PE/DVTs. Age, gender, ethnicity, ferritin, and COVID-19 therapeutics were not correlated with increased risk of thromboembolism. Lower fibrinogen was associated with a significantly decreased risk of thromboembolism (381ng/mL vs. 567ng/mL, p=0.016). Advanced-dose prophylaxis had a statistically significantly higher rate of bleeding than standard-dose ($\chi^2=17.2$, p

Presenters: Lauren Longaker

TITLE: Benefit of Early Treatment with Remdesivir in Hospitalized COVID-19 Patients Receiving Non-invasive Oxygen Supplementation

AUTHORS: Lauren Longaker, Evan Lantz, Angela Wilson

OBJECTIVE: Summarize the difference, if any, between receiving remdesivir within 7 days of symptom onset compared to after 7 days.

SELF ASSESSMENT QUESTION: Is there a difference in outcomes when remdesivir is initiated within 7 days of symptom onset in patients with COVID-19 on non-invasive oxygen supplementation?

BACKGROUND: The purpose of this study was to assess the efficacy of remdesivir in COVID-19 patients requiring non-invasive supplemental oxygen related to the temporal relationship from date of symptom onset to initiation.

METHODOLOGY: This retrospective cohort study evaluated patients who were COVID-19 positive and receiving non-invasive oxygen supplementation. Eligible patients were separated into two groups, those who received remdesivir within 7 days of symptom onset or after 7 days. The primary endpoint was the median time to recovery related to time of remdesivir initiation from symptom onset. Secondary endpoints included mortality, length of stay and safety outcomes. Background characteristics were reported, and data was analyzed using appropriate statistical tests under the direction of a statistical analyst.

RESULTS: A total of 88 patients were included in the analysis. Patients who received remdesivir greater than 7 days after symptom onset had a median time to recovery of 5 days compared to 7 days in those initiated within 7 days (p=0.0160). Patients who received remdesivir within 7 days from symptom onset also had a mean length of stay one day longer those initiated after 7 days (p=0.0248). Three patients experienced elevation of liver function enzymes and two patients had an eGFR documented less than 30 mL/min/1.73m². Five patients died in the within 7 days group and 3 patients died in the after 7 days group (p=0.1402).

CONCLUSIONS: Patients who received remdesivir after 7 days of symptom onset experienced a faster time to clinical improvement and reduced length of stay. These results may have been confounded by statistical differences in baseline characteristics between groups.

Presentation link: <https://youtu.be/WRxjvJPn3js>

I Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

Presenters: Summer Sizemore

TITLE: Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

AUTHORS: Summer Sizemore, Megan Patel, Cyle White

OBJECTIVE: Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

SELF ASSESSMENT QUESTION: Which influenza testing modality is more effective in reducing time to diagnosis, oseltamivir prescription, and contact precautions?

BACKGROUND: Early and accurate influenza testing is imperative to identify infected patients, initiate antiviral therapy, and provide infection prevention measures. Prior to August 2019, the study institution primarily utilized antigen based influenza testing. This resulted in false negatives that were identified by a subsequent respiratory viral panel (RVP). Since then, the institution adapted polymerase chain reaction (PCR) testing, which has the highest sensitivity and specificity.

METHODOLOGY: This retrospective, observational review compared clinical outcomes in patients who tested positive for influenza via send out testing for respiratory viral pathogens after an initial antigen screen to patients who tested positive by PCR after PCR only testing implementation. Adult and pediatric patients were selected for a chart review in a 1:2 ratio with twice the amount of patients in the post-PCR implementation group. The primary outcome compared time to initiation of appropriate antiviral treatment. Secondary outcomes assessed time to confirmed diagnosis and time to contact precaution initiation.

RESULTS: A total of 174 patients were included; 58 in the pre-PCR group and 116 in the post PCR group. The primary outcome assessed mean time from first influenza test to oseltamivir prescription which was 45.3 hours in the pre-PCR group and 5.1 hours in the post-PCR group. The secondary outcome of mean time from first influenza test to confirmed diagnosis was 43.6 and 1.7 hours in the pre-PCR and post-PCR groups, respectively. Mean time from first medical contact to contact precautions was found to be 69.9 hours and 13.2 hours in the pre-PCR and post-PCR groups.

CONCLUSIONS: Patients receiving PCR based influenza testing experience a quicker time to oseltamivir prescription, influenza diagnosis, and contact precautions.

<https://www.youtube.com/watch?v=b0PxuPR6UsY>

L **Naloxegol for return of gastrointestinal function after colorectal surgery in patients prescribed opiates**

Room E

Presenters: Skyler Brown

TITLE: Naloxegol for return of gastrointestinal function after colorectal surgery in patients prescribed opiates

AUTHORS: SR Brown, JM McLoughlin, AJ Russ, MA Casillas, JM Buehler, SD Yeager, JR Yates

OBJECTIVE: Describe naloxegol's efficacy following colorectal surgery in patients prescribed opiates

SELF ASSESSMENT QUESTION: Naloxegol is a potentially useful option following colorectal surgery because: A) Its cost B) No REMS program C) Belongs to a drug class previously showing efficacy in population D) All of the above

BACKGROUND: Post-operative ileus and delayed return of gastrointestinal function are significant causes of morbidity and prolonged hospital stay in patients undergoing colorectal surgery. Enhanced recovery after surgery protocols have been developed across the United States, which frequently include peripherally acting mu receptor antagonists to reverse the effects of opiates on the gastrointestinal tract without compromising analgesia. Alvimopan is the most commonly used agent in the class, but it is contraindicated with the use of opioids chronically. Naloxegol is a potential alternative to alvimopan in patients prescribed chronic opioid analgesics. To our knowledge, naloxegol has not been studied in this patient population.

METHODOLOGY: In this single-center, retrospective cohort, adult patients prescribed opioid analgesics who underwent colorectal surgery at the University of Tennessee Medical Center were included. Patients were excluded for the following: receipt of alvimopan, admission for abdominal trauma, naloxegol prescribed prior to admission, naloxegol given once pre-operatively but not post-operatively, and patients who expire during hospitalization. Patients will be divided into two groups dependent upon the receipt of naloxegol. The naloxegol group received standard of care plus naloxegol 12.5 mg once pre-operatively, then 12.5 mg daily post-operatively until a bowel movement for up to seven days. The placebo group received standard of care. The primary endpoint is mean time to first bowel movement or discharge, whichever comes first. Secondary endpoints include incidence of post-operative ileus, length of stay, a cost-benefit analysis, and gastrointestinal adverse events. Using a two-sided alpha value of 0.05 and 80 percent power, it was determined that 68 total patients would need to be collected. The primary endpoint is to be evaluated using a linear multiple regression analysis, while other endpoints will be evaluated using a Mann-Whitney U or Chi-squared tests.

RESULTS: Our preliminary results found a non-statistically significant reduction in the primary endpoint in the naloxegol group by 25.6 hours ($p=0.101$). Additionally, naloxegol reduced length of stay by 2.3 days ($p=0.023$) and was well tolerated in the safety analysis.

CONCLUSIONS: Preliminary data suggests naloxegol may be a safe and effective alternative to alvimopan, especially in patients who are prescribed opiates not qualifying for the use of alvimopan. Additional data must be collected to meet power for this study.

O **Characterization of Venous Thromboembolism Rates in Standard- and High-Risk Multiple Myeloma Patients Treated with RVd vs KRd**

Room A

Presenters: Natalie Brumwell

TITLE: Characterization of Venous Thromboembolism Rates in Standard- and High-Risk Multiple Myeloma Patients Treated with RVd vs KRd

AUTHORS: Natalie Brumwell, Kathryn Maples, Kevin Hall, Adrian Gavre, Nisha Joseph, Subir Goyal

OBJECTIVE: Identify various VTE risk factors in patients with MM.

SELF ASSESSMENT QUESTION: What risk factors are associated with VTE incidence in MM patients?

BACKGROUND: The risk for venous thromboembolism (VTE) is elevated in multiple myeloma (MM) patients, especially those receiving IMiDs. This study's purpose is to evaluate VTE rates in transplant eligible, high-risk, newly diagnosed MM patients treated with RVd versus KRd to determine if stronger VTE prophylaxis is warranted in the KRd population. Further, VTE rates between standard- and high-risk patients receiving RVd will be compared to assess the relation of risk status to VTE rates.

METHODOLOGY: This is a single-center retrospective chart review of patients who underwent treatment of newly diagnosed MM with RVd or KRd between January 1, 2017 and August 31, 2020. Inclusion criteria are adults ≥ 18 with newly diagnosed multiple myeloma, on aspirin prophylaxis, and receiving treatment with at least one cycle of RVd or KRd. The primary outcomes include rate of first occurrence of VTE in patients treated with KRd versus high-risk patients treated with RVd and rate of first occurrence of VTE in standard-risk vs high-risk patients treated with RVd. Secondary outcomes include time (days) to first VTE and VTE-related death.

RESULTS: Eighty-seven patients were included, with 30 patients each in the RVd standard-risk and high-risk groups, and 27 patients in the KRd group. In the RVd standard-risk vs high-risk group, 3 VTEs (10%) occurred vs 0, respectively ($p=0.237$). In the RVd high-risk vs KRd groups, 0 vs 3 VTEs (11.1%) occurred, respectively ($p=0.100$). The entire RVd group yielded 5% VTE rate vs 11.1% with KRd. The average time to first VTE was comparable for RVd vs KRd at 100 days vs 102 days, respectively.

CONCLUSIONS: There was not a significant difference of VTE rates between the groups; however, the overall higher rate with KRd may warrant stronger prophylaxis.

VIDEO LINK: <https://youtu.be/RKK2xqHztAw>

1 Evaluating Anticoagulation From Low Molecular Weight Heparin In Hematopoietic Stem Cell Transplant Recipients

Room F

Presenters: Kelli McCrum

TITLE: Evaluating Anticoagulation From Low Molecular Weight Heparin In Hematopoietic Stem Cell Transplant Recipients

AUTHORS: Kelli McCrum

OBJECTIVE: Identify anti-factor Xa level trends in patients receiving therapeutic doses of enoxaparin who have received a hematopoietic stem cell transplant.

SELF ASSESSMENT QUESTION: What factor should be taken into consideration when dosing therapeutic enoxaparin?

BACKGROUND: Historically, enoxaparin kinetics have been considered predictable, making anti-Xa monitoring obsolete unless a patient is pregnant, obese, or has poor renal function. However, a 2011 study found that solid organ transplant recipients may be a patient population where anti-Xa monitoring may be necessary. The study found that 67% of patients receiving therapeutic enoxaparin had supratherapeutic anti-Xa levels requiring dose reductions. Additionally, the study proposed a theoretical drug-drug interaction between enoxaparin and tacrolimus, the standard immunosuppressive used in both solid organ and hematopoietic stem cell transplant (HSCT) recipients.

METHODOLOGY: In an attempt to gain insight on safe and effective low molecular weight heparin (LMWH) dosing in patients who have undergone HSCT, anti-Xa levels are being monitored for HSCT recipients and patients with a leukemia or lymphoma diagnosis who are receiving enoxaparin for a therapeutic indication from December 2020 to April 2021.

RESULTS: Between December 2020 and April 2021, thirteen patients received therapeutic enoxaparin at a dose of 1mg/kg every 12 hours. Eight patients required dose adjustments for supratherapeutic anti-Xa levels. The average weight based dose for these patients is 0.7 mg/kg. Five of the eight patients requiring a dose adjustment had previously received a stem cell transplant. None of the thirteen patients received tacrolimus while receiving enoxaparin.

CONCLUSIONS: Data supports the notion that traditional 1mg/kg enoxaparin dosing may cause supratherapeutic anti-Xa levels in patients who have received a HSCT. Data collection will continue as more data is needed to draw any formal conclusions.

B Implementation of a Clinical Pharmacy Transitions of Care Initiative for Patients with Ambulatory Care Sensitive Conditions (ACSC)

Room J

Presenters: Keeya Turner

TITLE: Implementation of a Clinical Pharmacy Transitions of Care Initiative for Patients with Ambulatory Care Sensitive Conditions (ACSC)

AUTHORS: Keeya Turner, Amanda Karels, Cassandra Warsaw, Erin Amadon

OBJECTIVE: Describe results of clinical pharmacist specialists (CPS) inclusion in transition of care for patients with ACSC hospitalizations

SELF ASSESSMENT QUESTION: Which of the following are considered ACSC that are evaluated in the SAIL value model?

BACKGROUND: ACSC hospitalizations and readmissions were identified as an area for potential improvement in response to the Strategic Analytics for Improvement and Learning (SAIL) value model. The SAIL model is a national initiative implemented to improve hospitals' performance within the Veterans Health Administration.

Conditions classified as ACSC include hypertension, diabetes, pneumonia (PNA), congestive heart failure (CHF), and chronic obstructive pulmonary disease (COPD).

This project's aim was to reduce ACSC hospital readmissions by including counseling from CPS.

METHODOLOGY: This project was a quality improvement retrospective cohort analysis, which included patients discharged from Fayetteville VA Medical Center (FVAMC) between July and September 2020. ACSC hospitalizations were identified by admission diagnosis of COPD, CHF, or PNA. The primary endpoint was percentage of ACSC patients seen by a CPS within 14 days of discharge, stratified by CPS clinic. Secondary endpoints included number of CPS interventions, percentage of ACSC patients with medication review documented by inpatient CPS, and frequency of 30-day readmissions for ACSC patients encountered by CPS.

RESULTS: Thirty-five percent of ACSC patients were encountered by a CPS within 14 days of discharge. There were 48 medication interventions made by CPS during follow up appointments. The inpatient CPS reviewed 71% of the patients admitted to FVAMC for ACSC hospitalizations. There were only 2 ACSC readmissions within 30 days of discharge.

CONCLUSIONS: This project provides insight to CPS impact during transitions of care. It also has potential to generate future projects concerning the discharge and documentation process within FVAMC. Ultimately, this may benefit SAIL ratings and help improve patient care within FVAMC.

B Improving diabetes management for veterans through implementation of a population health-based telepharmacy clinic

Room K

Presenters: Rachele Kelley

TITLE: Improving diabetes management for veterans through implementation of a population health-based telepharmacy clinic

AUTHORS: Rachele Kelley, Courtney Gamston, Pamela Stamm, Garrett Aikens, Greg Peden, P. David Brackett, Kimberly Braxton-Lloyd

OBJECTIVE: List interventions made through implementation of a telepharmacy diabetes service.

SELF ASSESSMENT QUESTION: What is the impact of a population health based telepharmacy diabetes service?

BACKGROUND: Population health management utilizes data from an entire community of patients to develop strategies to improve health outcomes. Population health data from a rural clinic of the VA system have demonstrated the need for enhanced care for its patients with diabetes. To improve the quality of care provided to veterans of this area, a population health-based telepharmacy service housed within a school of pharmacy was developed to provide a diabetes management service.

METHODOLOGY: Eligible veterans were identified through population health dashboards as having no A1C measurement and/or an A1C \geq 9% within the last 12 months. Eligible patients were recruited by phone to participate in a telepharmacy-based comprehensive diabetes intervention. Clinical pharmacists and fourth-year pharmacy students on advanced practice rotations provided disease state counseling, medication therapy management, and referrals, as indicated. Service evaluation will occur through a comparison of pre-/post-intervention data including A1C, medications, medication adherence, blood pressure, fasting blood glucose, and adherence to diabetes guideline recommendations.RESULTS: Since the initial analysis of the first population health dashboard in August 2020, several patients have been contacted to have labs drawn, some of which has an A1C \geq 9%, resulting in a reduction in patients needing labs and an increase in patients with A1C \geq 9%. Since the initiation of the comprehensive diabetes clinic visits, five patients have been enrolled and several drug-related problems (DRPs) have been addressed.

CONCLUSIONS: Although unable to compare pre-/post data since initiation of clinic, several DRPs were addressed. Of those patients we have contacted thus far, all were willing to enroll in the clinic to receive pharmacy management for their diabetes care. Initial and follow-up appointments are currently ongoing.

R Comparison of Incremental Versus Percentage Dose Adjustment Protocols for Patients on Extracorporeal Membrane Oxygenation (ECMO) Support Receiving Argatroban

Room B

Presenters: Carys Davies

TITLE: Comparison of Incremental Versus Percentage Dose Adjustment Protocols for Patients on Extracorporeal Membrane Oxygenation (ECMO) Support Receiving Argatroban

AUTHORS: C. Davies, N. Badger-Plange, H. Powell, C. Moran, D. Garrett, A. Komisar, C. Parry

OBJECTIVE: To determine if an incremental versus a percentage-based dose adjustment nomogram for argatroban for ECMO anticoagulation requires fewer total changes over the course of therapy.

SELF ASSESSMENT QUESTION: Is an incremental or a percentage-based nomogram for argatroban dosing for ECMO safer for patients?

BACKGROUND: Systemic anticoagulation is required for patients supported on extracorporeal membrane oxygenation (ECMO). Unfractionated heparin has been the gold-standard anticoagulant used. However, critically-ill patients on ECMO may develop thrombocytopenia, leading to concerns for heparin-induced thrombocytopenia (HIT). Hence, the use of argatroban for this indication has increased. Further research is warranted to define goal activated partial thromboplastin time (aPTT) ranges and dose adjustment protocols to provide safe and effective anticoagulation.

METHODOLOGY: This study was conducted via retrospective chart review. Adult patients receiving argatroban while on ECMO were included. Patients were excluded if argatroban was discontinued before two therapeutic aPTT values. Patients started on a newly-implemented, incremental dose adjustment protocol ("incremental group") were matched to those who received argatroban on the previously used percentage-based dose adjustment protocol ("percentage group"). Endpoints included average number of dose adjustments per day, total percentage of therapeutic aPTT values, and dosing errors in each protocol.

RESULTS: A total of 26 patients were included in this study with 13 patients each group. The average number of dose adjustments per day were 0.78 in the incremental group and 0.67 in the percentage group ($p=0.5$). The total percent of therapeutic aPTT values in the incremental group was 62% and 65% in the percentage group ($p=0.65$). There were 3 protocol errors in the incremental group and 0 in the percentage group ($p=0.72$).

CONCLUSIONS: While there were no statistically significant differences in endpoints between both groups, the increased frequency of errors in the incremental group was concerning for patient safety. Therefore, the percentage-based dose adjustment protocol was safer for use.

Video link: <https://vimeo.com/538967725>

Presenters: Taylor Tanner

TITLE: Impact of adrenergic vasopressor exposure in a community teaching hospital intensive care unit

AUTHORS: Taylor Tanner, Sarah Blackwell, Kenda Germain

OBJECTIVE: To evaluate the effect of decreased maximum adrenergic vasopressor dosages on overall vasopressor exposure

SELF ASSESSMENT QUESTION: Does lowering vasopressor dosage caps reduce overall vasopressor exposure?

BACKGROUND: Vasopressors are commonly administered to intensive care unit (ICU) patients for hemodynamic support; however, their use may decrease perfusion to vital areas of the body, resulting in adverse effects. In 2016, a new intensivist group at Princeton Baptist Medical Center (PBMC) drove a global reduction in maximum vasopressor dosage limits, leading to questions of whether optimal doses exist.

METHODOLOGY: This is a single-center, retrospective, comparative group study conducted in patients admitted to the Medical ICU at PBMC from August to October 2016 and 2019. Patients were included if they were 19 years of age or older and received infusion(s) of epinephrine, norepinephrine, and/or phenylephrine for at least 4 hours. Patients who died, transferred to inpatient hospice within 24 hours of adrenergic vasopressor initiation, transferred from an outside hospital ICU, were pregnant, or received hemodynamic support pending organ harvest were excluded. The primary outcome was mean adrenergic vasopressor dose in norepinephrine equivalents over the first 72 hours. Secondary outcomes included number of concomitant vasopressors, incidence of vasopressin initiation, index ICU length of stay after vasopressor initiation, shock-free survival, and incidence of acute kidney injury, digital necrosis, and mesenteric ischemia.

RESULTS: There were 79 patients included, 41 in the pre-implementation group and 32 in the post-implementation group. There was no statistically significant difference in mean adrenergic vasopressor dose between the two groups ($p=0.17$).

CONCLUSIONS: There was no difference in overall vasopressor exposure between groups; however, incidence of the addition of phenylephrine and vasopressin were higher post-implementation. This study suggests that lowering vasopressor dosage caps may lead to increased utilization of secondary agents.

Video presentation: <https://vimeo.com/543186798>

Presenters: Hannah Christensen

TITLE: Reducing Hypoglycemia in the Cardiovascular Intensive Care Unit

AUTHORS: Hannah Christensen, Jessica Odom, Lyndsay Gormley, John Bruch, Austin Roe, Alex Ewing

OBJECTIVE: Determine if less conservative blood glucose targets in cardiac surgery patients reduces hypoglycemia incidence without increasing sternal wound infection rates.

SELF ASSESSMENT QUESTION: What are risk factors for sternal wound infection?

BACKGROUND: Hypoglycemia (blood glucose ≤ 70 mg/dL) is associated with increased risk of mortality in intensive care unit (ICU) patients. Conversely, hyperglycemia (blood glucose ≥ 180 mg/dL) in cardiovascular surgery patients is an independent risk factor for postoperative sternal wound infection (SWI). SWI prolongs hospital stay and is associated with significantly increased morbidity and mortality. Postoperatively, current guidelines recommend a continuous intravenous insulin infusion to maintain blood glucose < 180 mg/dL. Beyond this threshold, there is conflicting evidence on the degree of glycemic control intensity to optimize patient outcomes without increasing hypoglycemia. All cardiac surgery patients at our institution receive an insulin infusion controlled by a computer-based algorithm to maintain perioperative blood glucose within a target range, previously set at 100-140 mg/dL. In September 2020, the glycemic target was changed to 120-160 mg/dL. The objective of this study was to determine if increasing perioperative serum blood glucose targets for patients undergoing median sternotomy cardiac surgery from 100-140 mg/dL to 120-160 mg/dL reduces hypoglycemia incidence without increasing SWI rates.

METHODOLOGY: A single-center, retrospective, pre- and post-intervention analysis was conducted. The pre-implementation period included October to December 2019, with a run-in period during September 2020. The post-implementation period encompassed October to December 2020. Patients included adults admitted to the Prisma Health – Upstate Greenville Memorial Hospital CVICU on continuous insulin infusions after cardiac surgery. Patients placed on extracorporeal membrane oxygenation or who died during surgery were excluded. The primary outcome was hypoglycemia incidence < 70 mg/dL. Key secondary outcomes included 30-day SWI incidence, all-cause mortality, time on insulin drip, incidence of severe hypoglycemia < 40 mg/dL, bloodstream infection, and postoperative renal failure.

RESULTS: The number of hypoglycemic events < 70 mg/dL per 1,000 ICU days significantly decreased from 73.37 to 27.34 ($p < 0.001$). There was no significant difference in 30-day sternal wound infection rates or any other key secondary outcomes.

CONCLUSIONS: A perioperative target glucose range of 120-160 mg/dL significantly reduced rates of hypoglycemia in CVICU patients after cardiac surgery, compared to a target range of 100-140 mg/dL, without increasing rates of sternal wound infection.

I **Remdesivir 5 vs 10 days of therapy in patients with COVID-19 on invasive mechanical ventilation or extracorporeal membrane oxygenation**

Room I

Presenters: Lindsay Oehlkers

TITLE: Remdesivir 5 vs 10 days of therapy in patients with COVID-19 on invasive mechanical ventilation or extracorporeal membrane oxygenation

AUTHORS: Lindsay Oehlkers, Jarett Worden, and Kwame Asare

OBJECTIVE: Compare five versus 10 days of remdesivir therapy in patients with COVID-19 who require invasive mechanical ventilation or ECMO.

SELF ASSESSMENT QUESTION: Is there a difference in clinical status in patients with COVID-19 who are treated with five versus 10 days of remdesivir therapy who require invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO)?

BACKGROUND: COVID-19, or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified in December 2019, and has since caused over 24 million cases in the United States alone, leading to over 500,000 deaths. To date, there are no published studies assessing shorter courses (

I **Time series analysis evaluating the short- and long-term impacts of a multifaceted approach to targeting fluoroquinolone use in a tertiary, non-teaching hospital**

Room H

Presenters: Brianna Belsky

TITLE: Short- and long-term impacts of a multifaceted approach to targeting fluoroquinolone use in a tertiary, non-teaching hospital

AUTHORS: Brianna Belsky, Quentin Minson

OBJECTIVE: Evaluate the impact of a multifaceted approach to decreasing fluoroquinolone use on consumption of fluoroquinolones and common alternative antibiotics at a tertiary, non-teaching hospital.

SELF ASSESSMENT QUESTION: Does the implementation of a multifaceted approach to decreasing fluoroquinolone use lead to significant changes in antimicrobial consumption and resistance rates on an antibiogram at a tertiary, non-teaching hospital?

BACKGROUND: Fluoroquinolone use is a known risk factor for multi-drug resistant organisms, which results in higher hospital costs. Previous studies have shown that restricting fluoroquinolones can lead to reversals in resistance of various bacteria and decrease superinfections. A variety of strategies exist to decrease fluoroquinolone use, but feasibility and efficacy differ depending on the setting and available resources.

METHODOLOGY: This study is a single-center, retrospective, interrupted time series analysis spanning from January 2011 to December 2019 at a 288-bed tertiary, non-teaching hospital with 71 ICU beds. The fluoroquinolone restriction policy was implemented in September 2014. The primary outcome is trends in fluoroquinolone consumption measured by defined daily doses per 1000 adjusted patient days (DDD/1k APD). Secondary outcomes included the consumption of alternative antimicrobials measured by DDD/1k APD and the impact on *Pseudomonas aeruginosa* susceptibilities.

RESULTS: Fluoroquinolone consumption decreased from 100.20 DDD/1000 APD in August 2014 to 73.96 DDD/1000 APD in October 2014. Fluoroquinolone consumption decreased further to 14.89 DDD/1000 APD in

December 2019. The only significant increase in other classes of antimicrobials was seen with tetracyclines.

Levofloxacin susceptibility rates for *Pseudomonas aeruginosa* increased from 61% in 2014 to 83% in 2018.

CONCLUSIONS: A significant decrease in fluoroquinolone consumption was seen during the late post-intervention period and a significant increase in levofloxacin susceptibility was seen for *Pseudomonas aeruginosa* after the implementation of a fluoroquinolone restriction policy.

PRESENTATION LINK: <https://www.youtube.com/watch?v=RzQ8oSL84Ts>

Presenters: Christina DiCola

TITLE: Evaluating the Safety of an Apixaban Loading Dose for New Venous Thromboembolism Events in Patients with Severe Kidney Disease

AUTHORS: Christina DiCola, Paul Pleczkowski, Lexie Zidanyue Yang, James Merchant Jr.

OBJECTIVE: To describe appropriate apixaban therapy in patients with severe renal dysfunction diagnosed with a VTE

SELF ASSESSMENT QUESTION: Based on current recommendations from the drug manufacturer, what is the initial dose for a patient with CKD-V and a newly diagnosed DVT wishing to start apixaban therapy?

- a) apixaban 2.5mg twice daily
- b) apixaban 5mg twice daily
- c) apixaban 7.5mg twice daily
- d) apixaban 10mg twice daily**

BACKGROUND: Each year, there are 10 million cases of venous thromboembolism (VTE) reported. Apixaban is an oral anticoagulant used as treatment for VTE. There is a lack of data for the use of apixaban in new VTE events among patients with Chronic Kidney Disease (CKD) stage IV, V, or End-Stage-Renal-Disease (ESRD).

METHODOLOGY: This retrospective, single center, observational cohort study included patients 18 years and older who received apixaban for a newly diagnosed VTE from September 2014 to September 2020. Included patients had CKD-IV, CKD-V, or ESRD. Patients were placed into two apixaban treatment groups: loading dose vs. maintenance dose.

RESULTS: A total of 97 patients were included. The composite bleed event rate was 14.3% for the loading dose group and 11.6% for the maintenance dose group (risk difference, 2.7% [90% CI, -9.9% to 15.3%]; P=0.59 for non-inferiority). The proportion of VTE reoccurrences was higher in the loading dose group compared to the maintenance dose group (17.9% vs. 8.7%).

CONCLUSIONS: An apixaban loading dose for new VTE events may be safe in patients with CKD-IV, CKD-V, or ESRD.

Presenters: Keenya Leggette

TITLE: Evaluation of the Integration of Simulation to Teach Medication Safety

AUTHORS: Keenya Leggette; Ronda Whipple; Sarah Braga; Andrea McKeever

OBJECTIVE: Identify teaching methodologies for medication safety that improve student performance and confidence.

SELF ASSESSMENT QUESTION: Which teaching methodologies for medication safety improved student performance and confidence?

BACKGROUND: The purpose of the study is to assess student performance and confidence with the integration of simulation to teach medication safety. Effectiveness of teaching is critical for students' development of knowledge and skill sets. Lecture continues to be utilized to help establish foundational knowledge, and active learning methodologies (e.g., simulation) have increased to reinforce classroom instruction and offer opportunities for application.

METHODOLOGY: This study is a prospective evaluation of student performance on medication safety related activities in a school of pharmacy drug information course. Enrolled students voluntarily participated in three quiz knowledge assessments and one activity survey. Each quiz was 10-minutes in duration and consisted of the same five medication safety questions administered at baseline, post didactic lecture, and post simulation. The simulation was a team-based root cause analysis involving various clinical scenarios. The final simulation survey was administered at the completion of all activities and included eight questions related to student confidence and preparedness.

RESULTS: Forty-six students participated in at least one knowledge assessment quiz. Scores were deidentified and composite analysis was performed. Of the 46 participants, 87% completed the baseline quiz, 91% completed the post-didactic quiz, and 89% completed the post-simulation quiz. The mean scores for the quizzes were 73.5%, 79.5%, and 88.8%, respectively. Forty-two students completed the simulation survey (91% of original 46 students). At baseline, 4.76% of the students were extremely confident, 2.38% very confident, 33.33% somewhat confident, 35.71% not so confident, and 23.81% not at all confident in their ability to perform a root cause analysis. Responses were 2.38%, 21.43%, 69.05%, 2.38%, and 4.76% post-lecture, respectively, and 7.14%, 69.05%, 21.43%, 0%, and 2.38% post-activity, respectively.

CONCLUSIONS: Student performance and confidence improved with lecture and simulation.

<https://youtu.be/q-XZI4pLwjc>

B DESCRIPTION AND FINANCIAL IMPACT OF AMBULATORY CARE PHARMACIST INTERVENTIONS WITHIN AN UNDERSERVED PATIENT POPULATION

Room K

Presenters: Salman Hasham

TITLE: DESCRIPTION AND FINANCIAL IMPACT OF AMBULATORY CARE PHARMACIST INTERVENTIONS WITHIN AN UNDERSERVED PATIENT POPULATION

AUTHORS: Salman Hasham, Maria Miller Thurston, Pamela Moye-Dickerson, Teresa Pounds

OBJECTIVE: Characterize and quantify the types of interventions performed by an ambulatory care pharmacy team.

SELF ASSESSMENT QUESTION: What is the financial impact of having an ambulatory care pharmacist at an outpatient clinic?

BACKGROUND: Characterize and quantify the types of interventions performed by an ambulatory care pharmacy team (ACPT).

METHODOLOGY: Retrospective, single-center cohort study designed to characterize and quantify types of ACPT interventions performed, evaluate the financial impact of such interventions, and create a cost template for the interventions using the health system's i-Vent intervention documentation system. Eligible participants included in this study were patients age 18 or older who had an appointment at Wellstar Atlanta Medical Center's Sheffield HealthCare Center from 07/01/2018 to 06/30/2020 and received a pharmacy consult. The following data was collected: intervention types, number of specific interventions, the economic impact per intervention, average cost avoidance per intervention, total economic impact, and total cost avoidance.

RESULTS: There were four major categories of interventions which included patient counseling, drug utilization review, medication therapy management, and drug information. Each category was divided into subcategories, with a total of eighteen different subcategories. There were a total of 1334 interventions documented by ACPT during the two-year study period. The most frequently documented intervention was medication therapy management, with a total of 630 interventions. The economic impact per intervention was approximately \$30 per intervention. The average cost avoidance was estimated to be \$357.62 per intervention. The total economic impact was \$40,020. The total cost avoidance was \$477,065.

CONCLUSIONS: Of the over 1000 ACPT interventions conducted, medication therapy management was the most commonly documented intervention. The interventions have been associated with a significant amount of economic impact and cost avoidance for the health system. The data from the study has allowed for the creation of a cost for specific ambulatory care interventions using the health system's i-Vent intervention documentation system.

B INR Stabilization After Withholding Warfarin for Colonoscopy

Room J

Presenters: Sally Sikes

TITLE: INR Stabilization After Withholding Warfarin for Colonoscopy

AUTHORS: Sally Sikes, PharmD, Kelley Baxter, PharmD, Matt Bibb, PharmD, BCGP

OBJECTIVE: State the median number of days to INR stabilization after withholding warfarin for colonoscopy.

SELF ASSESSMENT QUESTION: What was the median time in days to INR stabilization post-colonoscopy?

BACKGROUND: Determine the time to INR stabilization after withholding warfarin for colonoscopy.

METHODOLOGY: This study is an IRB-approved, retrospective chart review of patients 18 years of age and older enrolled in the AMC who underwent a colonoscopy between September 1, 2016 and September 30, 2018. Patients were excluded if they were not monitored by AMC periprocedurally, had additional procedures performed within 4 weeks of colonoscopy, or were lost to follow-up post-colonoscopy prior to INR stabilization. The primary objective is to determine the time to INR stabilization after withholding warfarin for colonoscopy.

RESULTS: Forty patients were included in the study. The median time to INR stabilization post-colonoscopy was 40 days [IQR, 28-63]. There was no difference in the median warfarin TWD pre-colonoscopy versus post-colonoscopy (41mg [IQR, 33-54]). Patients with documented drug-drug interactions took longer to reach stable INR status (64 days, [IQR, 57-75]) than those without drug-drug interactions (35 days, [IQR, 25-55]). Patients who were on parenteral anticoagulation reached stable INR status quicker than those who were not (28 days [IQR, 23-38] versus 50 days [IQR, 33-54]). Patients considered more stable (INR checking frequency of 5-6 weeks) took longer to reach stabilization post-colonoscopy. These findings are likely due to the more stable patients and patients who didn't require parenteral therapy being scheduled for extended INR checking frequency intervals faster than the other groups.

CONCLUSIONS: The median time to INR stabilization after withholding warfarin for colonoscopy was 40 days.

R Pharmacokinetic Comparison of AUC/MIC Dosing Vancomycin Versus Traditional Trough-Based Dosing in the Critical Care Setting

Room C

Presenters: Courtney McDonald

TITLE: Pharmacokinetic Comparison of AUC/MIC Dosing Vancomycin Versus Traditional Trough-Based Dosing in the Critical Care Setting

AUTHORS: Courtney McDonald, Josh Chestnutt, Deanne Tabb

OBJECTIVE: Describe how the implementation of a Bayesian AUC calculator can affect clinical outcomes.

SELF ASSESSMENT QUESTION: What is the benefit of implementing a Bayesian AUC calculator for vancomycin dosing?

BACKGROUND: Vancomycin has a complex pharmacokinetic profile making dosing and monitoring difficult. Recent studies evaluating dosing based on the area under the curve (AUC) over 24 hours/minimum inhibitory concentration (AUC/MIC) are gaining recommendation. Bayesian models using existing population parameters and patient's individual parameters can be used to calculate a vancomycin dose required to provide specific AUC values. The purpose of this study is to evaluate Bayesian AUC/MIC dosing in the intensive care patients versus the traditional trough-based dosing in preparation for selection of an appropriate AUC-guided dosing tool.

METHODOLOGY: A retrospective chart review was conducted to evaluate trough-based vancomycin dosing protocol between October 1, 2019 through September 30, 2020. Patients who received intravenous vancomycin with at least one level drawn were evaluated. The primary outcome was percentage of patients with predicted AUC values above 600 mg·hr/L as well as predicted AUC values below 400 mg·hr/L using a Bayesian estimated-assisted AUC value.

RESULTS: A total of 54 patients were included in the study. Predicted Bayesian-AUC value was above 600 mg·h/L in 18/54 (33%) of patients potentially increasing risk for acute kidney injury (AKI). Predicted AUC below 400 mg·h/L occurred in 4/54 (7%) of patients indicating potential subtherapeutic dosing.

CONCLUSIONS: Using trough-based dosing showed predicted Bayesian-AUC values above therapeutic goal in one-third of patients increasing risk for AKI. Implementing a Bayesian AUC calculator can allow for a more targeted dose within the predicted AUC while minimizing lab draws. In conclusion, Piedmont can benefit from the use of a Bayesian AUC calculator.

R SAFETY OUTCOMES OF TENECTEPLASE VERSUS ALTEPLASE FOR ACUTE ISCHEMIC STROKE

Room B

Presenters: Mary Walton

TITLE: SAFETY OUTCOMES OF TENECTEPLASE VERSUS ALTEPLASE FOR ACUTE ISCHEMIC STROKE

AUTHORS: Mary N. Walton, Leslie A. Hamilton, Sonia Kennedy, Brian Wiseman, Ann M. Forester, A. Shaun Rowe

OBJECTIVE: Describe the utility of tenecteplase in acute ischemic stroke and its safety versus alteplase.

SELF ASSESSMENT QUESTION: What is one benefit of utilizing tenecteplase as the primary thrombolytic for acute ischemic stroke treatment?

BACKGROUND: Tenecteplase (TNK) is a genetically engineered fibrinolytic with greater specificity for fibrin-bound clots compared to alteplase. Previous studies have shown that tenecteplase is as effective as alteplase for neurologic improvement, and when administered at 0.25 milligrams per kilogram, may have fewer bleeding complications. The purpose of this study is to determine if safety outcomes are different in patients receiving tenecteplase versus alteplase for acute ischemic stroke.

METHODOLOGY: We reviewed patients 18 years and older receiving alteplase or tenecteplase for acute ischemic stroke from July 1, 2016, to December 31, 2020. Patients admitted before April 28, 2020, received alteplase 0.9 mg/kg as a 10% intravenous (IV) bolus over one minute followed by the remaining dose as an IV infusion over one hour. Patients admitted after this date received tenecteplase 0.25 mg/kg IV bolus over five to ten seconds. Any patient transferring from an outside facility were excluded. The primary objective of this study is to determine if major bleeding as defined by the 2005 ISTH or GUSTO definition is significantly different in patients receiving tenecteplase versus alteplase for acute ischemic stroke. The secondary functional objectives are change in modified Rankin scale, post-thrombectomy reperfusion of the ischemic territory based on TIC1 (thrombolysis in cerebral infarction) score, and mortality.

RESULTS: There was no significant difference in major bleeding between alteplase and tenecteplase [45 (25%) vs. 20 (17%), $p=0.104$, respectively]. There was also a trend toward decreased hospital length of stay for tenecteplase compared to alteplase [4 days vs. 6 days, $p<0.0001$]. There was no difference in all-cause inpatient mortality [16 (9%) vs. 5 (4%), $p=0.128$]. Additionally, there were no significant differences in adverse events between the groups [18 (10%) vs. 14 (12%), $p=0.599$].

CONCLUSIONS: Tenecteplase had similar rates of major bleeding versus alteplase in the treatment of acute ischemic stroke. Tenecteplase may be considered as a primary thrombolytic in place of alteplase for acute ischemic stroke.

Presenters: Courtney King

TITLE: Impact of oral vs parenteral anticoagulation on thrombotic events in hospitalized SARS-CoV-2 population

AUTHORS: Courtney King, Abigayle R Campbell, Stephanie A Smith, Lauren R Whitfield

OBJECTIVE: Describe the optimal anticoagulation regimen for hospitalized SARS-CoV-2 positive patients

SELF ASSESSMENT QUESTION: True or false: SARS-CoV-2 positive patients are at an increased risk of thrombotic events due to the virus.

BACKGROUND: The exact mechanism of coagulopathy in SARS-CoV-2 positive population is unknown, however it is likely multifactorial. At this time an optimal anticoagulation strategy has not been identified to prevent thrombotic events in hospitalized patients. The purpose of this study is to determine if oral or parenteral anticoagulation impacts the percentage of inpatient SARS-CoV-2 patients that develop a thrombotic event.

METHODOLOGY: This single-center retrospective chart review included data from March 1, 2020 - November 30, 2020. Patients were enrolled if they were ≥ 18 years old with a positive SARS-CoV-2 diagnosis, hospitalized ≥ 72 hours, and received ≥ 1 dose of an anticoagulant. Patients were excluded if they had an active bleed, platelets $< 50,000$, hemoglobin < 7 , less than 18 years old, had any contraindication to anticoagulation therapy, had history of heparin-induced thrombocytopenia with or without thrombosis, or were pregnant. The primary outcome is the percentage of patients that develop a thrombotic event during hospitalization. Secondary outcomes include percentage of patients with major bleed, time to intensive care unit (ICU) stay, ICU length of stay, hospital length of stay, and in-hospital mortality.

RESULTS: The primary outcome was found to be statistically significant ($p < 0.0001$). Secondary outcomes of ICU length of stay and time to ICU were also statistically significant ($p = 0.008$ and $p = 0.0097$ respectively).

CONCLUSIONS: Although the data is statistically significant, it may not be clinically significant. Multiple confounders were present that could have skewed results. More analysis is needed to determine the effect of anticoagulation on the rate of venous thromboembolism in this patient population.

<https://youtu.be/jUe8xgO9BqE>

Presenters: Stephanie Yasechko

TITLE: Time to Positive Blood Cultures in the Pediatric Intensive Care Unit

AUTHORS: Stephanie Yasechko, Alfred Fernandez, Mark Gonzalez, Preeti Jaggi, and Alison Smith

OBJECTIVE: Describe blood culture TTP in a PICU.

SELF ASSESSMENT QUESTION: What variables may affect blood culture TTP in critically ill pediatric patients?

BACKGROUND: The Surviving Sepsis Campaign recommends obtaining blood cultures before initiation of antibiotics. In most institutions, patients are empirically treated for at least 48 hours while awaiting blood culture results. However, this practice is based on minimal evidence. The aim of our study was to assess time to positive blood cultures in the Pediatric Intensive Care Unit (PICU).

METHODOLOGY: This retrospective chart review included patients 0-20 years of age with positive blood cultures obtained in or within 48 hours of transfer to our PICU between January 1, 2018 and June 30, 2020. Patients' first positive blood culture for a particular organism was used to evaluate the primary end point of time between blood culture draw and gram stain result. Secondary endpoints included: percentage of cultures reported by time and time to positivity (TTP) by organism grown, volume of blood sample, and host risk level.

RESULTS: 164 total cultures were included for analysis. The median TTP was 13.3 hours (IQR 10.7-16.8 hours). By 12, 24, 36, and 48 hours, 37%, 89%, 95%, and 98% of all blood cultures were positive, respectively. Median TTP stratified by host risk level was 13.22 hours for previously healthy patients, 13.95 hours for those standard risk (presence of at least one comorbidity), and 10.58 hours for high risk patients (severely immunocompromised) ($P = 0.001$). Median TTP was found to be independent of blood volume, and no significant difference was seen in TTP for gram negative and gram positive organisms (12.22 vs. 13.86 hours, $P = 0.2$).

CONCLUSIONS: The decision to continue empiric antibiotics in the absence of positive blood cultures could be re-evaluated as early as 24 hours to spare patients from unnecessary antibiotic exposure.

Presenters: Heidi King

TITLE: Evaluation of pharmacy-driven medication access initiatives in the inpatient setting

AUTHORS: Heidi King, Megan Bereda, Carrie Tilton, Jessica Nave, Nicole Metzger

OBJECTIVE: Describe the impact of inpatient pharmacist-driven transitions of care services on clinical outcomes.

SELF ASSESSMENT QUESTION: What impact did pharmacist-driven transitions of care initiatives have on hospital length of stay?

BACKGROUND: Pharmacists can improve transitions of care at discharge through ensuring patients can afford their discharge prescriptions, but there is limited published data on whether these interventions improve clinical outcomes. The purpose of this study is to evaluate the impact of medication access interventions prior to discharge by pharmacy personnel.

METHODOLOGY: This is a single center retrospective cohort study of adult patients admitted from January 1, 2014 to August 31, 2020. The primary outcome is hospital length of stay. Secondary outcomes include all-cause readmissions at 7-days, 30-days, and 90-days and a summary of the type of interventions, success in approval, turnaround time, cost savings, and adherence.

RESULTS: The average length of stay for case patients was 9.1 ± 9.7 days. Anticoagulants were the most common medication pharmacists intervened on. After pharmacist interventions, most copays for medications were < \$10, and most interventions took between 30 minutes to 1 hour to complete.

CONCLUSIONS: Pharmacists were able to make interventions on 155 case patients.

PRESENTATION LINK: <https://youtu.be/73zkyloQWWo>

Presenters: Richard Liu

TITLE: Evaluation of Antimicrobial Prescribing and Follow-up for Urinary Cultures in the Advanced Care Center (ACC)

AUTHORS: Richard Liu, Gabby Furgieuele, Ruaa Al-Baldawi, and Kayla Randle

OBJECTIVE: Evaluate the efficacy and appropriateness of antimicrobial prescribing and urine culture follow-up for urinary tract infections (UTIs) in ACCs

SELF ASSESSMENT QUESTION: Describe a benefit of ASP implementation?

BACKGROUND: Antibiotic stewardship programs (ASPs) are essential in slowing antimicrobial resistance as well as improve timely antimicrobial selections, reduce antibiotic overuse, and decrease unnecessary adverse drug events. Pharmacist-led ASPs, focusing on urine cultures and follow-up for UTIs, presents an effective method for ASP/outpatient pharmacy service expansion. Currently, a pharmacist-created UTI prescribing orderset, SmartRx, is available to improve guideline-concordant prescribing. However, limited data exists on the appropriateness/timeliness of antimicrobial prescribing and urine culture follow-up practices.

METHODOLOGY: This was a multi-site, retrospective observational study examining antimicrobials prescribed and timeliness of follow-up after a positive urine culture in patients discharged from ACC clinics. Included members were discharged between January 1, 2019 to December 31, 2019 with a positive urine culture. Excluded were ≤ 18 years-old and/or were admitted to the hospital or transferred to another institution. JIRA reports and electronic medical records were utilized to evaluate prescribing patterns, follow-ups, and timeliness of patient outreach.

RESULTS: Overall, 1,418 KPGA members were evaluated and 1,309 patients were prescribed empiric antibiotic therapy for a UTI. Only 41 encounters (3.13%) utilized SmartRx at point of prescribing. The most prescribed empiric agent was ciprofloxacin, followed by nitrofurantoin and cephalexin. Average timeframe for discharge to culture result, culture result to closed encounter, and culture result to patient contact (if needed) was 59 hours, 44 hours, and 7.65 hours, respectively.

CONCLUSIONS: Currently, ACCs are overutilizing non-preferred first-line agents for the treatment of UTIs and inefficiencies in patient outreach exist following discharge. These contributes to justification for increased ASP efforts in our ACCs and pharmacist involvement. Possible optimization includes encouraging SmartRx utilization, expanding provider knowledge on first-line UTI agents, and improving workflow deficiencies to decrease time to action on culture results.

S Getting Started - Day 1

Room A

PINNED

9:30am – 9:45am

Welcome to SERC 2021!

Sessions/Abstracts are open for viewing and evaluating.

Presenters: Please view and evaluate as many abstracts as you would like. To do so,

- click on the abstract title you would like to view
- Check the radio button to add to your SCHED
- Read over the presenter's profile and view the abstract
- Watch the recorded presentation
- Submit a formal evaluation using the feedback survey. You can also provide immediate feedback to the presenter using the emoticons at the bottom of the abstract.
- If you have any questions for the presenter, please have them ready during the live Q&A on April 29th.

On April 29th, you will need to be present in your scheduled room at your scheduled time to answer questions regarding your own abstract. The times and rooms for April 29th are exactly the same as the times and rooms you see on SCHED. For example, if your presentation is listed in SCHED for 4/20/2021 11:20-11:25AM in Room C then you will need to be present in the Zoom meeting breakout room C during Session III. The link to the Zoom meeting is located in the SCHED session on April 29th.

Evaluators: Please view and evaluate all the abstracts in the session & room you were assigned, plus as many additional abstracts as you would like between now and April 28th. To do so,

- Click on the abstract title
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- Have 1-2 questions ready for each presenter on April 29th in case no questions are being asked.

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Moderators: Please view and evaluate all the abstracts in the session & room you were assigned, plus as many additional abstracts as you would like between now and April 28th. To do so,

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S Day 2

Room A

PINNED

9:30am – 9:45am

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S **Day 3**

Room A

PINNED

9:30am – 9:45am

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2021 Southeastern Residency Conference - Virtual

- A** Administration (ADM) **B** Ambulatory Care (AMB) **C** Cardiology (CAR) **Y** Community Pharmacy (CP)
- R** Critical Care/Emergency Medicine (CCM) **G** Geriatrics (GER) **I** Infectious Disease (ID) **L** Internal Medicine (IM)
- M** Medication Safety (MES) **N** Neurology (NEU) **O** Oncology (ONC) **P** Psychiatric Pharmacy (PSY) **S** SERC
- T** Transitional Care (TC) **1** Transplant (TRP)

APRIL 20 • TUESDAY

PINNED 9:00am – 9:15am	S Evaluating Starts 4/21/2021 You can add abstracts to your schedule today, however please remember today is still an editing day for our presenters!! Evaluations do not start until tomorrow morning at 8am!	Room A
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9:45am – 9:50am	A Evaluation of Pharmacy Technician Leadership Training through a National Survey and Focus Group <i>Presenters: Behren Ketchum</i> TITLE: Evaluation of Pharmacy Technician Leadership Training through a National Survey and Focus Group AUTHORS: Behren Ketchum, Benjamin Coles, Linda Logan OBJECTIVE: Describe the current state of training for pharmacy technician leaders and identify the need for additional training or qualifications for leadership roles. SELF ASSESSMENT QUESTION: Certified pharmacy technicians generally feel prepared upon entering a leadership position. True/False BACKGROUND: As new pharmacy practice models deploy pharmacists into direct patient care services, advancement of certified pharmacy technicians (CPhT) is essential. Although avenues exist for CPhT skill-based advancement, opportunities for leadership training are lacking. The objective of this study is to evaluate available and/or received training for CPhT leaders and to determine the need for additional training or qualifications for technicians pursuing leadership roles. METHODOLOGY: Through collaboration with the Pharmacy Technician Certification Board (PTCB), an internet-based survey was emailed to a random sample of 10,000 active CPhTs. A self-selected subset of participants were scheduled for focus groups. Internet survey was analyzed using descriptive statistics. Focus group data will be analyzed through thematic analysis. RESULTS: As 30% of pharmacy technicians hold leadership roles, a 100% response rate from this group would be 3,000 CPhTs. The survey achieved a 15% response rate (N=443) with 75% of respondents completing the survey. Few received formal leadership training prior to (25%) or after (42%) accepting a leadership position. Type of leadership training was often reported as on-the-job training, certifications, life experience, and mentoring, while advanced degrees or leadership seminars/development programs were rare. Despite feeling prepared to enter a leadership role (73%), the majority felt they could benefit from leadership training (80%) and credentialing would motivate them to pursue higher level positions (78%). Focus groups are ongoing. CONCLUSIONS: Survey results indicate a possible lack of accessible leadership training programs. A national training program specific to CPhTs pursuing administrative roles may benefit CPhTs and institutions.	Room G
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B Impact of Clinical Pharmacists on Type 2 Diabetes Mellitus outcomes in the primary care setting before and during the Public Health Emergency surrounding COVID-19.

Room K

Presenters: Chelsea Orvin

TITLE: Impact of Clinical Pharmacists on Type 2 Diabetes Mellitus outcomes in the primary care setting before and during the Public Health Emergency surrounding COVID-19.

AUTHORS: Chelsea Orvin, Caleb Rich, Ashley Woodhouse, Joseph Crosby, Chelsea Keedy

OBJECTIVE: Identify and compare the overall change in T2DM outcomes prior to the pandemic versus during the pandemic.

SELF ASSESSMENT QUESTION: What is one way pharmacists can sustain telephonic visits for disease state management in the ambulatory care setting when Public Health Emergency (PHE) waivers expire?

BACKGROUND: To determine the impact of ambulatory care pharmacists on Type 2 Diabetes Mellitus outcomes prior to and during the COVID-19 pandemic.

METHODOLOGY: A computer-generated list identified patients whose Type 2 Diabetes Mellitus (T2DM) was managed by clinical pharmacists from August 2019 to October 2020. Patient data prior to the pandemic was compared to outcomes during the pandemic, as pharmacists started regularly utilizing Remote Patient Monitoring (RPM) services during the pandemic to lessen in-person visits. Data collected included comorbidities, change in hemoglobin A1C, diabetes medication history and adherence, and statin therapy adherence. Percentage of HEDIS and MIPS measures met and billing code frequencies were also assessed.

RESULTS: There were 91 patients who had their T2DM managed by a clinical pharmacist from August 2019-October 2020 meeting the inclusion criteria of initial A1C > 8%. In the pre-pandemic group, the average 3 and 6 month A1C reduction was 1.3% and 1.2%, respectively. The average 3 and 6 month A1C reduction in the during-pandemic group was 2% and 2.2%, respectively. The percentage of patients appropriately initiated or maintained on a statin in the pre-pandemic group was 96.2% and 82.6 % in the during-pandemic group.

CONCLUSIONS: Data demonstrates the opportunity for pharmacists to maintain and improve clinical outcomes related to T2DM despite the ongoing COVID19 pandemic through implementation of telephonic monitoring. While services such as Remote Patient Monitoring (RPM) were able to be utilized by pharmacists prior to the Public Health Emergency (PHE), the pandemic presents an ongoing need to explore opportunities for practice sustainment.

C Prophylactic Enoxaparin Dosing Regimen in Morbidly Obese Patients

Room E

Presenters: Rachel Rusk

TITLE: Prophylactic Enoxaparin Dosing Regimen in Morbidly Obese Patients

AUTHORS: Rachel Rusk, William Guynn, Joshua Settle

OBJECTIVE: Identify a potential dosing regimen for an obese patient that requires venous thromboembolism prophylaxis with enoxaparin.

SELF ASSESSMENT QUESTION: What is the goal anti-Xa level for an obese patient for prophylactic enoxaparin dosing?

BACKGROUND: Enoxaparin is standard therapy for venous thromboembolism (VTE) prophylaxis in hospitalized patients. Enoxaparin's distribution is weight-based, which may increase VTE risk in obese patients using standard regimens. The literature suggests a twice daily regimen of enoxaparin in patients with a body mass index (BMI) greater than or equal to 40kg/m². The purpose of this study is to implement and assess a twice daily dosing regimen for enoxaparin prophylaxis in patients with a BMI greater than or equal to 40kg/m².

METHODOLOGY: Patients included were 19 years of age or older, had a BMI of 40kg/m² or greater, and received enoxaparin for VTE prophylaxis. Creatinine clearance was 30mL/min or greater. Patients were excluded if they were pregnant or had contraindications to enoxaparin. The dose was adjusted to enoxaparin 40mg twice daily if the BMI was greater than or equal to 40kg/m². Peak anti-factor Xa levels were measured four to six hours after the third dose. The dose was increased or decreased by 10 mg for subtherapeutic and suprathereapeutic levels respectively.

RESULTS: Sixty five patients were included in this study. Seventy five percent of patients had a therapeutic initial anti-xa level. There were 4 occurrences of suprathereapeutic initial levels and 10 occurrences of subtherapeutic initial levels. There were two occurrences of bleeding (hematuria & minor epistaxis) and 4 patients required transition to treatment dose enoxaparin: COVID-19, new onset atrial fibrillation, probable pulmonary embolism, and internal jugular vein thrombosis. Twelve other patients were excluded from the study due to being discharged prior to follow up.

CONCLUSIONS: A majority of the patients enrolled in this study had a therapeutic initial anti-xa level, with little evidence of bleeding or thrombosis. This demonstrates that the proposed regimen is a safe and effective method for dosing prophylactic enoxaparin in this patient population.

Video presentation link: <https://vimeo.com/539220929>

R EVALUATION OF PROTON-PUMP INHIBITOR (PPI) DOSING FOR GASTROINTESTINAL BLEED (GIB) PROPHYLAXIS IN EXTRACORPOREAL MEMBRANE OXYGENATION

Room B

Presenters: Racheal Bailey

TITLE: EVALUATION OF PROTON-PUMP INHIBITOR (PPI) DOSING FOR GASTROINTESTINAL BLEED (GIB) PROPHYLAXIS IN EXTRACORPOREAL MEMBRANE OXYGENATION

AUTHORS: Racheal Bailey; Jeannie Watson; Matt Bibb

OBJECTIVE: Describe differences between GIB prophylaxis modality in ECMO patients.

SELF ASSESSMENT QUESTION: Does twice daily PPI dosing decrease the rate of GIB in patients undergoing ECMO?

BACKGROUND: Bleeding is the most frequent and serious complication associated with ECMO. GIB has been identified in approximately 8% of ECMO patients at time of death. There are no current guidelines that comment on GIB prophylaxis specifically in ECMO patients. The purpose of this study is to evaluate the efficacy of PPIs for the prevention of GIB in patients undergoing ECMO.

METHODOLOGY: This study is a retrospective chart review of adult patients who were on ECMO between January 1, 2019 and July 31, 2020. This study includes a single center (ASTW). Data will be analyzed to assess differences in PPI dosing and GIB. Secondary outcomes include the rate of GIB and mortality.

RESULTS: 76 patients were included in this study with 47 patients receiving pantoprazole twice daily. 5 patients had a GIB while on ECMO therapy, 6.6%, with 4 GIBs occurring in the pantoprazole BID group. Patients in the pantoprazole twice daily group were on ECMO significantly longer ($p=0.006$) than all other patients. Overall mortality was 50% in the ECMO population.

CONCLUSIONS: There was no significant difference in GIB between pantoprazole BID and the other modes of prophylaxis. In ECMO patients at ASTW, incidence of GIB at was 6.6% and mortality was 50%. The majority of GIBs were in the pantoprazole twice daily group; this was not statistically significant. The pantoprazole BID group made up the majority of the study population (61.8%) and was on ECMO significantly longer than the rest of the population. Further research is needed to determine the best mode of GIB prophylaxis in ECMO patients.

R Impact of Anticoagulation Targets on Bleeding in Venovenous Extracorporeal Membrane Oxygenation

Room C

Presenters: Jessica Cercone

TITLE: Impact of Anticoagulation Targets on Bleeding in Venovenous Extracorporeal Membrane Oxygenation

AUTHORS: Jessica Cercone, Shawn Kram, Morgan Trammel, Craig Rackley, Hui-Jie Lee, James Merchant Jr., Bridgette Kram

OBJECTIVE: To describe the impact of different anticoagulation targets on bleeding complications in patients receiving venovenous extracorporeal membrane oxygenation (VV-ECMO) for acute respiratory distress syndrome (ARDS)

SELF ASSESSMENT QUESTION: Which of the following laboratory parameters may be used to monitor anticoagulation in ECMO patients?

- a. Anti Xa levels
- b. Activated clotting time (ACT)
- c. Activated partial thromboplastin time (aPTT)
- d. All of the above**

BACKGROUND: The risk of bleeding and thrombotic complications must be balanced when administering systemic anticoagulation to patients receiving ECMO. Due to lack of data supporting standardized anticoagulant monitoring, therapeutic targets may vary across institutions.

METHODOLOGY: This retrospective, single center, observational cohort study included patients 18 years and older who received VV-ECMO for ARDS from September 2013 to December 2019. Included patients received continuous infusion heparin and had at least two aPTTs resulted during heparin therapy. Patients were placed into three treatment groups based on the time of index cannulation: aPTT < 50 sec, aPTT 40-50 sec, or No Protocol group.

RESULTS: A total of 136 patients were included. There was no statistically significant difference in rates of bleeding between the three groups (26.7% vs. 34% vs. 39.3, $p=0.50$). The difference in bleeding events between groups was primarily due to a difference in the receipt of a blood transfusion. The no protocol group required a slightly increased median number of units of packed red blood cells than the < 50 and 40-50 sec groups (3 vs. 2 vs. 0.5, respectively). The percentage of aPTT values above goal was similar between groups. Rates of thrombotic events were comparable between the three groups.

CONCLUSIONS: Anticoagulation protocols targeting an aPTT of < 50 or 40-50 sec may be a safe and reasonable strategy for patients receiving VV ECMO for ARDS.

I ANALYSIS OF THE EFFECTS OF PERIOPERATIVE CULTURE OBTAINMENT ON CLINICAL OUTCOMES OF PATIENTS WITH INTRA-ABDOMINAL SOURCES OF INFECTION

Room I

Presenters: Matthew Laws

TITLE: ANALYSIS OF THE EFFECTS OF PERIOPERATIVE CULTURE OBTAINMENT ON CLINICAL OUTCOMES OF PATIENTS WITH INTRA-ABDOMINAL SOURCES OF INFECTION

AUTHORS: Matthew Laws, Sage Greenlee, Wes Wilkerson, Darrell Childress, Chris Harrison

OBJECTIVE: Describe the effect of perioperative culture obtainment on patients with a complicated intra-abdominal infection undergoing surgical intervention.

SELF ASSESSMENT QUESTION: Do perioperative cultures improve post-surgery outcomes in patients being treated for a complicated intra-abdominal infection?

BACKGROUND: Current guidelines for the treatment of complicated intra-abdominal infections recommend using pathogen directed antimicrobial therapy guided by perioperative cultures. The purpose of this study was to investigate outcomes in patients undergoing surgical intervention for an intra-abdominal infection based upon the obtainment of perioperative cultures.

METHODOLOGY: This IRB approved retrospective cohort evaluated patients diagnosed with a complicated intra-abdominal infection requiring surgical intervention between January 1, 2017 to December 31, 2019. Patients 19 – 75 years of age who were diagnosed with a complicated intra-abdominal infection requiring surgical intervention were included. The primary outcome was a composite of ≥ 10 -day length of stay, 30-day readmission, or mortality. Secondary outcomes included duration of antimicrobials, time to appropriate antimicrobials, incidence of de-escalation/escalation of antimicrobials, and composite length of stay.

RESULTS: A total of 186 patients met inclusion criteria, and 46 of the included patients had perioperative cultures obtained. The composite primary outcome revealed 36 (78.3%) patients in the culture group and 84 patients (60%) in the no culture group ($p=0.032$). In regard to secondary outcomes, the no culture group had a longer average length of stay compared to the culture group, 16.92 days vs. 13.57days ($p=0.063$). The average duration of antimicrobial therapy was found to be longer in the culture group (14.71 days) than in the no culture group (10.15 days) ($p=0.002$). Appropriate escalation/de-escalation occurred in 43% of cases, and the average time to appropriate antimicrobial initiation was 95.7 hours.

CONCLUSIONS: Patients in whom perioperative cultures were obtained during surgical intervention for a complicated intra-abdominal infection were found to have a higher likelihood of the primary composite outcome as well as longer courses of antimicrobials.

LINK TO SLIDES: https://drive.google.com/drive/folders/1-i2K8NZNRdhd_IR2sigCrLqkJ7j8lgU?usp=sharing

I Evaluation of antibiotic use in patients with gram positive bacteremia after implementation of a rapid diagnostic blood culture panel with pharmacist review

Room J

Presenters: Thomas Sessoms

TITLE: Evaluation of antibiotic use in patients with gram positive bacteremia after implementation of a rapid diagnostic blood culture panel with pharmacist review

AUTHORS: Thomas Sessoms, Toni Pate, Thomas Brown, Serina Tart

OBJECTIVE: At the conclusion of the presentation, the participant will be able to identify the benefits of BCID-2™ testing in patients with gram positive bacteremias.

SELF ASSESSMENT QUESTION: Which of the following are potential benefits of rapid diagnostic BCID-2™ testing for gram positive bacteremia? (select all that apply)

BACKGROUND: Molecular rapid diagnostic testing for blood stream infections can quickly identify organisms and reduce time to appropriate treatment. The purpose of this study is to evaluate the impact on the time to targeted therapy in patients with gram positive bacteremias after implementation of a blood culture identification panel (Biofire Blood Culture Identification Panel BCID2™) with pharmacist review.

METHODOLOGY: This retrospective, quality improvement cohort study included patients admitted at a large community hospital from December 1, 2020 to February 28, 2021 with gram positive bacteremia identified on the BCID2. Comparison of endpoints was made to a control group of patients admitted July 1, 2020 to September 30, 2020 with gram positive bacteremia prior to BCID2 testing. The primary objective was to compare time to targeted therapy with traditional testing versus time to targeted therapy with BCID-2™ testing. Secondary objectives were to compare: mean time to organism identification; hospital wide days of therapy for vancomycin, daptomycin, and linezolid; and length of stay.

PRELIMINARY RESULTS: The primary outcome was statistically significant with a mean of 89.1 vs. 44.4 hours. Time to bacteria identify was statistically significant with a mean of 88.5 hours vs. 30.5 hours. Length of stay was not statistically significant. The days of therapy were reduced in the post-intervention.

CONCLUSIONS: BCID-2 testing and pharmacist intervention decreases time to targeted therapy.

I Outcomes and Safety Associated with Semi-synthetic Penicillins versus Cefazolin in the Treatment of Epidural Abscess

Presenters: Carolyn Hill

TITLE: Outcomes and Safety Associated with Semi-synthetic Penicillins versus Cefazolin in the Treatment of Epidural Abscess

AUTHORS: Carolyn Hill, Zachary Gruss, Tyler Stone, Jim Beardsley, Jim Johnson, Erin Barnes, Chris Ohl, John Williamson

OBJECTIVE: To describe and compare outcomes of SSPs versus cefazolin in the treatment of epidural abscess caused by MSSA.

SELF ASSESSMENT QUESTION: Is cefazolin associated with positive outcomes in the treatment of SEA?

BACKGROUND: Semi-synthetic penicillins (SSPs) are favored in the treatment of spinal epidural abscesses (SEA) caused by methicillin-susceptible *Staphylococcus aureus* (MSSA) because of proven efficacy and reliable concentrations achieved in cerebrospinal fluid. SSPs are known to cause adverse events, e.g. nephrotoxicity, and can be difficult to administer in the outpatient setting. Studies examining cefazolin in the treatment of MSSA bacteremia have revealed a more favorable adverse event profile, and cefazolin is easier to administer to outpatients. However, the efficacy of cefazolin in treating SEA remains unclear. This study aims to compare outcomes of SSPs versus cefazolin in the treatment of SEA caused by MSSA.

METHODOLOGY: This is a single-center, retrospective, observational study at an academic tertiary care medical center. Patients ≥ 18 years old with radiographic evidence of SEA, positive culture for MSSA, and treated with SSP or cefazolin were included. The primary outcome is clinical success at 90 days after completion of antibiotic therapy. Pertinent secondary outcomes include all-cause mortality at ninety days, need for antibiotic change before end of treatment course, and incidence of adverse events.

RESULTS: In progress.

CONCLUSIONS: In progress.

Link to presentation: <https://youtu.be/7-tEV-YgkLc>

M Impact of a Bundle Approach to Reduce the Occurrence of Iatrogenic Hypoglycemia

Presenters: Nabilah Ahmed

TITLE: Impact of a Bundle Approach to Reduce the Occurrence of Iatrogenic Hypoglycemia

AUTHORS: Nabilah Ahmed, Ryan Crossman

OBJECTIVE: This research project aims to evaluate the rate reduction of insulin-induced hypoglycemia with a targeted bundle approach when compared to historical facility and national benchmarks at a community teaching hospital.

SELF ASSESSMENT QUESTION: Did creating filtered lists to identify patients at risk of insulin-induced hypoglycemia prevent and/or reduce insulin-associated adverse events?

BACKGROUND: Insulin-induced hypoglycemia is a common adverse event at hospitals. To prevent iatrogenic hypoglycemia, it's essential to understand which patients are more susceptible during inpatient stay. One of the primary contributing factors is altered nutrition, especially patients on nothing by mouth (NPO) status. Additionally, comorbidities, being elderly, low body weight, being on other contributory medications, and total daily insulin doses (TDD) $>0.25-0.3$ units/kg/day may increase hypoglycemia risk. Previous quality improvement studies for reducing rates of hypoglycemia have found early identification and intervention, standardized protocols, dissemination of education, and multidisciplinary collaboration to be successful in reducing severe and overall hypoglycemia.

METHODOLOGY: The following filters on the electronic health record (EHR) are used as a predictive algorithm to identify patients potentially at risk of hypoglycemia:

- a. Underweight (BMI ≤ 18.5)
- b. Impaired renal (CrCl ≤ 30 mL/min)
- c. Impaired renal (CrCl $\leq 5 \times$ ULN)
- d. Nutritional status (albumin ≤ 3.5)

Upon identification of at-risk patients, pharmacists will contact the provider to modify the insulin regimen. This study will observe if identified at-risk patients have any occurrence of hypoglycemia during their stay. The collected data will be used to determine overall reduction of hypoglycemia occurrence and the need for implementation of further bundle components.

RESULTS: In progress

CONCLUSIONS: In progress

○ **Real-world Outcomes with Liposomal Cytarabine-Daunorubicin (Vyxeos) in Therapy-Related Acute Myeloid Leukemia and Acute Myeloid Leukemia with Myelodysplasia-Related Changes** Room A

Presenters: Kristina Murphy

TITLE: Real-world Outcomes with Liposomal Cytarabine-Daunorubicin (Vyxeos) in Therapy-Related Acute Myeloid Leukemia and Acute Myeloid Leukemia with Myelodysplasia-Related Changes

AUTHORS: Kristina D. Murphy, PharmD; Colleen McCabe, PharmD, BCOP; Danielle Schlafer, PharmD, BCOP; Subir Goyal, PhD; Nikolaos Papadantonakis, MD, PhD

OBJECTIVE: To describe response rates, adverse events, and prescribing patterns of CPX-351 outside of the clinical trial setting.

SELF ASSESSMENT QUESTION: Which of the following are associated with secondary AML resulting in higher risk of relapse with standard of care 7+3? A. Older Age B. Adverse/Complex Cytogenetics C. Multidrug Resistant Phenotypes D. All of the Above

BACKGROUND: Vyxeos (CPX-351) is a liposomal formulation of cytarabine and daunorubicin designed for improved cellular uptake and preferential drug delivery to leukemia cells. CPX-351 is approved for treatment of adults with therapy-related AML (t-AML) or AML with myelodysplasia related changes (AML-MRC), two difficult-to-treat subtypes with historically poor outcomes. However, there is limited data regarding outcomes with CPX-351 outside of clinical trials, specifically patients < 60 years of age and select subgroups appearing to have inferior outcomes.

METHODOLOGY: A retrospective chart review was conducted on all adult patients who received at least one induction cycle of CPX-351 from August 1, 2017 to June 1, 2020. The primary outcome was rate of complete remission (CR) and complete remission with incomplete blood count recovery (CRi). Secondary outcomes include rate of hematologic toxicity, time to count recovery, infection rate, overall survival, and progression free survival. CR and CRi rates were analyzed for the following subgroups: patients < 60 years of age, cytogenetic risk category, prior hypomethylating agent therapy, patients who continue onto hematopoietic cell transplant after receiving CPX-351, and consolidation regimen.

RESULTS: A total of 29 patients received CPX-351 within the defined study period. Forty-eight percent of patients were < 60 years of age. Seventy-six percent were classified as having unfavorable cytogenetic risk and 31% had complex cytogenetics. Patients included also had a wide variety of molecular characteristics including FLT3 (17%), IDH (17%), and KRAS (14%) mutations. The overall remission rate was 52% with 38% achieving a complete remission. In terms of secondary outcomes, 48% received a bone marrow transplant following induction. Second inductions occurred in 31% with the majority receiving either FLAG-IDA or CPX-351. Twenty-four percent received alternative consolidation regimens with HiDAC or bone marrow transplant while 41% received CPX-351. Rates of infection remained high. The time to hematologic recovery was consistent with what was seen in clinical trials with hematologic recovery occurring between day 33 to 37.

CONCLUSIONS: Overall remission rates in this study were similar to rates described in the initial clinical trials with CPX-351. However, this study included a significant number of younger patients with unfavorable risk, prior HMA exposure, and complex cytogenetics.

Audiovisual Link: <https://youtu.be/HXI6IrdCBFE>

B Differences of pharmacist completed annual wellness visits compared to pharmacist taught resident physician visits in a family medicine clinic.

Presenters: Marina Matthews

TITLE: Pharmacist completed annual wellness visits compared to pharmacist-taught, resident physician completed visits in a family medicine clinic.

AUTHORS: Marina Matthews, PharmD; Morgan Rhodes, BCACP, BC-ADM

OBJECTIVE: Compare pharmacist-physician co-visits to resident physician visits for adherence to guidelines and completion of required components of the annual wellness visit and interventions based on current guidelines.

SELF ASSESSMENT QUESTION: What are the components of an Annual Wellness Visit?

BACKGROUND: In primary care, managing preventative services has been shown to take up to 7.4 hours per day per physician. AWVs provide an opportunity for providers to address preventative services in an office visit while being no cost to the patient. Pharmacists performing annual wellness visits provides an opportunity to reduce workload, but also provide a unique skillset to address medications and preventative services. Though AWVs have been completed since 2011, there aren't many studies comparing head-to-head outcomes of physicians to support staff who complete AWVs alongside. There is even less data in the medical resident teaching setting, where pharmacists teach residents to complete AWVs and prepare them for future practice. These pharmacist-taught annual wellness visits are important to provide an optimal learning experience for medical residents.

METHODOLOGY: This was a retrospective chart review of all patients from the Prisma Health Family Medicine Center that had a completed AWV from November 1st, 2020 to March 31st, 2021 as a part of routine care. The primary aim is to determine whether the percent of visits performed by PharmD providers that completely met the applicable guidelines is non-inferior to the percent of visits performed by physician providers that completely met the applicable guidelines. The secondary aim is to compare descriptively the percent of components performed by pharmacists that met the applicable guideline to the percent performed by resident physicians that met the same applicable guideline.

RESULTS: A total of 31 patients were included in this IRB-approved study, with 12 (39%) patients in the pharmacist visit group and 19 (61%) in the resident-physician group. Baseline characteristics were similar between groups. There was no statistical significance between groups for any guideline recommended screenings except DEXA scans (9 vs. 7, $p=0.046$). Of the vaccination recommendations, Shingles (100% v. 38.9%, $p=0.001$), Pneumococcal (100% vs. 52.6%, $p = 0.005$), and Tdap (100% v. 57.9%, $p =0.012$), were all statistically significant in being address by a pharmacist. With regards to adherence to ADA & ACC/AHA guidelines, there was no significance between groups.

CONCLUSIONS: Significantly more immunizations, and DEXA scans were addressed in pharmacist visits, compared to resident-physician visits. With regards to adherence to current ADA & ACC/AHA guidelines, there was no difference between groups. There was no statistically significant difference in overall USPSTF guideline adherence between groups. While, pharmacists trended towards completing more recommended screenings (81.3% v 50%), there was no significance between groups.

Presenters: Alexander Le

TITLE: Evaluation of direct oral anticoagulant (DOAC) utilization in a primary care setting

AUTHORS: Alexander Le, Kimberly Zitko, Laura Schalliol

OBJECTIVE: Evaluate the utilization of DOACs in a primary care setting to determine whether patients' regimens follow guidelines-based recommendations and approved FDA labeled dosing and indication.

SELF ASSESSMENT QUESTION: What roles could pharmacists play in monitoring patients on a DOAC?

BACKGROUND: Direct oral anticoagulants (DOACs) are the first-line agents for most anticoagulation situations in patients with non-valvular atrial fibrillation and venous thromboembolism. The conditions that need to be satisfied prior to initiating a DOAC, added with dosing variability and lack of frequent monitoring, leaves uncertainty regarding appropriate utilization of these agents.

METHODOLOGY: A retrospective cohort chart review was completed on patients on a prescribed DOAC agent between January and June 2020. This study was conducted at Trinity Medical Associates in Knoxville, TN.

Researchers compared patients' DOAC dosing and medical history to determine whether the patient was receiving the medication in accordance with evidence-based recommendations. Descriptive statistics were utilized for the primary objective. Fisher's exact test was used to evaluate any associations between the specific DOAC agents used and the parameters of inappropriate utilization.

RESULTS: Sixty-four patients were identified to be on a DOAC prescription actively managed at the clinic. Twelve patients (18.8%) met at least one of the parameters for inappropriate utilization. The most common parameters were inappropriate dosing (9.6%) and absence of hepatic function data (7.8%). The only parameter that showed statistically significant associations with the specific DOAC agents used was inappropriate indication ($p=0.002$).

CONCLUSIONS: Optimizing DOAC regimens remains a challenge, particularly with dosing. Reviewing pertinent lab data such as hepatic and renal function are appropriate steps that need to be taken prior to and during DOAC initiation. There is opportunity for pharmacists to impact patient care with closer monitoring of patients on a DOAC to identify medication errors, assess medication adherence, and screen for potential adverse effects.

Presentation Link (Youtube): <https://youtu.be/KXlx6ggl18g>

Presenters: Elizabeth Clegg

TITLE: Impact of implementing pharmacist-led warfarin monitoring in the inpatient setting of a rural community hospital

AUTHORS: Elizabeth Clegg, Lindsey Arthur, Connor Floyd, Jun Wu

OBJECTIVE: Describe the impact of pharmacist-led warfarin monitoring on INR values in an inpatient setting.

SELF ASSESSMENT QUESTION: What are the benefits of having pharmacist-led warfarin monitoring during hospitalization?

BACKGROUND: Maintaining therapeutic INRs in warfarin management can be challenging given the vast list of drug interactions, medical comorbidities, and dietary changes that can affect warfarin. The purpose of this study was to evaluate the impact of implementing a pharmacist-led warfarin monitoring program in a rural community hospital.

METHODOLOGY: This was a pre-post intervention study looking at the impact of pharmacist-led warfarin management comparing a three-month baseline cohort retrospectively to a three-month prospective cohort after implementation. Eligible participants consisted of adults admitted with an indication for warfarin therapy. The primary endpoint was the number of therapeutic INRs. Secondary endpoints included incidence of subtherapeutic or supratherapeutic INRs, incidence of thrombosis or bleeding, days without INR collection, and number of patients discharged with a subtherapeutic INR without appropriate outpatient bridging.

RESULTS: A total of 246 patients were screened and 216 patients were included for analysis. There were significantly more therapeutic INRs in the post-implementation cohort (28.9% v. 35%, $p=0.03$). The post-implementation cohort had fewer subtherapeutic INRs (55.4% v. 44.4%, $p=0.0003$), days without INR collection (120 v. 96, $p=0.0014$), bleeding (19.5% v. 1.9%, $p=0.0097$), and patients discharged with a subtherapeutic INR without an appropriate bridging agent (23.9% v. 5.8%, $p<0.0002$). There were however significantly more supratherapeutic INRs in the post-implementation group (13.3% v. 18.5%, $p=0.0173$), but no significant increase in INRs >5.

CONCLUSIONS: This study showed that the implementation of a pharmacist-led warfarin monitoring protocol results in an increase in therapeutic INRs. Patients who had warfarin monitoring conducted by pharmacists also had less frequent subtherapeutic INRs, incidence of bleeding, and were less likely to be discharged without an appropriate bridging agent if indicated.

<https://youtu.be/JihY3WXiv38>

Presenters: Chandler Combs

TITLE: Assessment of a clinical pharmacist-driven medication appeal process in a dermatology practice

AUTHORS: Chandler Combs, B. Kyle Hansen, Sarah Pearce, Jennifer Young, Kathy Bricker

OBJECTIVE: Describe the role of the clinic-embedded pharmacist in the process of completing appeals for prior authorization denials for prescription medications.

SELF ASSESSMENT QUESTION: What is one example of a disease state in the dermatology field where a clinic-embedded pharmacist can impact care through the appeal process?

BACKGROUND: Prior authorizations (PAs) from insurance companies are necessary for controlling medication costs and drug appropriateness. However if denied, they can be extremely burdensome for clinic staff as the appeal process is complex and lengthy. In this study, the primary objective will be to evaluate the impact of a clinical pharmacist embedded in a dermatology practice on the rate of medication appeal submission.

METHODOLOGY: This study is designed as a retrospective, single-center review of appeal determinations for adult patients at a health-system based dermatology practice. The primary outcome is the change in the rate of appeals submitted pre-implementation of a pharmacist-driven appeal process during the period of August 1st, 2018 and May 31st, 2019 and post-implementation during the period of August 1st, 2019 and May 31st, 2020. Secondary outcomes are the change in the rate of appeal approvals, time to appeal submission and number of appeals submitted.

RESULTS: 245 PA denials were included in this study. The rate of appeal submission increased by 36.8% with the addition of a clinic-embedded pharmacist in the dermatology practice (20.8% vs. 57.6%, $p < 0.001$). A reduction of 46.7 days was seen in the average time to appeal submission (67.6 days vs. 20.9 days, $p < 0.001$). The rate of appeal approval showed an increase of 17.4% with the addition of a clinic-embedded pharmacist (47.6 vs. 65%, $p = 0.05$).

CONCLUSIONS: The presence of a clinic-embedded pharmacist in a dermatology practice positively impacted the rate of appeal submission, the rate of appeal approval and time to appeal submission. The field of dermatology provides an optimal environment for the addition of pharmacy services to assist with medication access.

<https://youtu.be/xRFL5feBvko>

Presenters: Adela Lupas

Association of ACEI/ARBs use with increase in severity of disease or rate of mortality in COVID-19 patients

Adela Lupas, Matthew Schwengels, Katherine E. Bradley

Background/Purpose: Various animal models showed higher expression of angiotensin-converting enzyme-2 (ACE-2) receptor as being beneficial or harmful in COVID-19 and previous studies with angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB) use show varying results on severity outcomes in COVID-19 patients. The purpose of this study was to determine the association of ACEI/ARBs use with mortality and severity of disease among hospitalized patients with COVID-19 at a rural community hospital.

Methods: Patients admitted from February 1, 2020 to September 30, 2020 with confirmed COVID-19 infection, ≥ 18 years old, and on anti-hypertensive medications were included. Patients such as pregnant women, children, inmates or those who transferred to other facilities were excluded from the study. The primary endpoints were in-hospital mortality, ICU admission, acute respiratory distress syndrome, and new hospice care without pre-existing terminal conditions, and secondary endpoints were assessed as composite endpoints. Student's t-test was used for continuous variables and the Pearson chi-square test for categorical variables. Multivariable logistic regression analyses were done to test the primary and secondary endpoints using SAS and R version.

Results: Out of 400 patients included in the study, 274 (69%) were on ACEI/ARB at baseline. Patients in ACEI/ARB group were younger (58 vs. 62 years) and had a higher prevalence of hypertension (91.2 vs. 68.3). There was no difference in sex, BMI, other comorbidities among the groups. After adjustment of multiple covariates, there was no difference in outcomes between the groups including mortality, ICU admission, acute respiratory distress syndrome, and new hospice care without pre-existing terminal conditions.

Conclusion: Previous use of ACEI/ARB does not worsen outcomes in hospitalized COVID-19 patients.

Presentation Objective: Identify the effects of ACEI/ARB use on COVID-19 mortality and severity of disease in COVID-19 patients

Self-assessment: Which of the following outcomes showed statistical significance when adjusted for age, HTN, and CKD?

Presenters: Alex Chappell

TITLE: Evaluation of Lactated Ringer's versus 0.9% Sodium Chloride in Diabetic Ketoacidosis

AUTHORS: Alex Chappell and Michael Simpson

OBJECTIVE: Review hypothetical benefits of balanced crystalloids over normal saline for fluid resuscitation in diabetic ketoacidosis and discuss the findings of this research.

SELF ASSESSMENT QUESTION: What benefits might be associated with fluid resuscitation with Lactated Ringer's in diabetic ketoacidosis and what might be challenges to using this fluid in practice?

BACKGROUND: Normal saline is the standard of care for fluid resuscitation in diabetic ketoacidosis. Large volumes of normal saline can induce a hyperchloremic metabolic acidosis which may exacerbate the acidosis. Buffered crystalloids have an alkalinizing effect and may reduce time to resolution of diabetic ketoacidosis. The purpose of this research was to evaluate the effect of choice of crystalloid, either Lactated Ringer's or 0.9% normal saline, on relevant clinical outcomes in diabetic ketoacidosis.

METHODOLOGY: This is a retrospective study comparing a standard of care group that received fluid resuscitation with normal saline and an experimental group that received Lactated Ringer's. Providers were educated on benefits and risks of Lactated Ringer's resuscitation in diabetic ketoacidosis and clinical pharmacists were involved in ordering the fluids after consultation with the provider. Eligible patients include those > 18 presenting with a diagnosis of diabetic ketoacidosis. Exclusion criteria include receipt of sodium bicarbonate or >2L of non-study fluid. Retrospective chart review was conducted to gather baseline demographic data including age, sex, medical history as well as relevant admission data including labs and medication orders.

RESULTS: In progress.

CONCLUSIONS: There have been many unforeseen challenges associated with this research including provider resistance to Lactated Ringer's in patients with hyperkalemia and overall poor adoption into practice at our site. Many patients with diabetic ketoacidosis present with hyperkalemia secondary to acidosis and hemoconcentration from osmotic diuresis. Hyperkalemia may present a barrier to the adoption of Lactated Ringer's as standard of care in diabetic ketoacidosis. More education and data about the risk, or lack thereof, for worsening hyperkalemia with Lactated Ringer's is needed.

Presenters: Megan Harlow

TITLE: Impact of continuous sedative selection on burn patient fluid resuscitation requirement

AUTHORS: Megan Harlow, Doug Wylie, Tyson Kilpatrick, Jan Jansen

OBJECTIVE: Explain the impact of sedative choice on fluid resuscitation in burn patients.

SELF ASSESSMENT QUESTION: True or False: This study found that use of midazolam was associated with a higher rate of delirium.

BACKGROUND: Patients that sustain severe burns (over 20% total body surface area) experience extensive capillary leakage. After appropriate resuscitation, this leakage improves within 18-24 hours and the need for fluid resuscitation declines. However, there is morbidity associated with both under and over resuscitation. Patients may also require sedation during this time. The impact of sedation on fluid requirements in this patient population is currently unknown. This study aims to determine if using midazolam for sedation reduces intravenous fluid requirements compared to patients receiving propofol therapy.

METHODOLOGY: Retrospective chart review was performed on patients ≥ 18 years old with severe burns who received sedation with midazolam or propofol for continuous sedation during the initial fluid resuscitation phase of their treatment. Patients were excluded if they received both propofol and midazolam simultaneously or expired in less than 48 hours. Fluid requirements were recorded over the first 48 hours.

RESULTS: 84 patients were included in the study. The total 48h fluids administered was 6.1 ± 2.9 mL/kg/TBSA in patients with no exposure to propofol compared to 6.0 ± 3.2 in patients exposed ($p=0.821$). The patients with no exposure to propofol required fewer colloid fluids in the first 48h compared to those exposed (0.4 ± 0.3 vs 0.7 ± 0.9 mL/kg/TBSA respectively, $p=0.015$). Midazolam use was associated with a higher rate of delirium ($p=0.011$), but not with a higher amount of acute respiratory distress syndrome ($p=0.011$).

CONCLUSIONS: Midazolam use did not impact the total amount of fluid administered in the first 48h of hospitalization but was associated with a reduction in the total volume of colloid fluid administered. Midazolam use was associated with a higher rate of delirium.

Video Link: <https://youtu.be/NeJ8IILPZr8>

I **Evaluation and Assessment of Antimicrobial Therapy Duration in Patients Discharged on Antibiotics for at the Atlanta VA Medical Center (AVAMC)** Room I

Presenters: Lucy Yang

TITLE: Evaluation and Assessment of Antimicrobial Therapy Duration in Patients Discharged on Antibiotics for at the Atlanta VA Medical Center (AVAMC)

AUTHORS: Lucy Yang, Amara Fazal, Lauren Epstein, Robert Gaynes, and Tiffany Goolsby

OBJECTIVE: Determine excess number of days of antibiotics prescribed at discharge

SELF ASSESSMENT QUESTION: T/F: Antibiotics are commonly overprescribed at discharge?

BACKGROUND: The goal of antibiotic stewardship programs (ASP) is to improve clinical outcomes and minimize harm. Despite widespread implementation of ASPs in the acute care setting, many antibiotics prescribed are completed after hospital discharge. Several retrospective studies demonstrate antibiotics prescribed at discharge result in an excess duration of therapy, which increases risk of acquiring multi-drug resistant organisms and leads to antibiotic associated adverse reactions. Therefore, preventing unnecessary antibiotic use is essential in improving patient care. Our goal was to assess total duration of antibiotics including both inpatient and outpatient durations for common infections to inform best practices for the AVAMC ASP.

METHODOLOGY: Patients included were hospitalized during January 1, 2019 through February 29, 2020, who were prescribed antibiotics on discharge indicated for urinary tract infections (UTI) (cystitis/pyelonephritis), pneumonia and skin and soft tissue infection (SSTI) (mild/moderate) using IDC-10 codes. A standardized chart abstraction tool and individual charts were reviewed for antibiotic durations. Data collection included patient demographics, diagnosis, duration of hospitalization, type and duration of antibiotic, type of prescriber, and admissions team.

RESULTS: We reviewed 282 patients and 113 met inclusion criteria, 32 UTIs, 39 pneumonia and 42 SSTI; Across all three categories, 16 UTI, 20 pneumonia and 21 SSTIs received prolonged courses of antibiotics with a median duration of 3 days for UTI, 2 for pneumonia and 3 for SSTIs.

Patients commonly received prolonged duration of antibiotics for SSTIs. Higher proportion of patients treated by hospitalists received prolonged courses compared to patients assigned to training teams for all indications.

CONCLUSIONS: Hospitalized patients at Atlanta VAMC diagnosed with UTI, pneumonia or SSTIs often received prolonged course of antibiotics prescribed following hospital discharge. Further analysis is needed to determine indications for prolonged antibiotic courses and areas for improvement.

Presentation: <https://youtu.be/AdU01RbVso>

I **Impact of Probiotics on the Development of Clostridioides difficile Infection in Patients Receiving Fluoroquinolones** Room H

Presenters: Mary Sheffield

TITLE: Impact of Probiotics on the Development of Clostridioides difficile Infection in Patients Receiving Fluoroquinolones

AUTHORS: Mary E. Sheffield, Bruce M. Jones, Blake Terrell, Jamie L. Wagner, Christopher M. Bland

OBJECTIVE: Identify the impact of probiotic administration on the development of primary CDI among patients receiving high-risk antibiotics.

SELF ASSESSMENT QUESTION: Which antibiotics have the highest associated risk of CDI?

BACKGROUND: Fluoroquinolones (FQ) are associated with an increased risk of Clostridioides difficile infection (CDI) due to disruption of normal gastrointestinal flora. Probiotic supplementation has been shown to reduce risk of antibiotic-associated diarrhea and primary CDI. The purpose of this study was to evaluate impact of probiotics on the development of primary CDI among patients receiving fluoroquinolones.

METHODOLOGY: Retrospective analysis of adult patients admitted from August 1, 2018 to August 31, 2020, that received ≥ 3 days of definitive monotherapy with levofloxacin or ciprofloxacin within 72 hours of admission. The probiotic group required ≥ 1 dose of probiotics during antibiotic treatment. Patients were randomized to include 100 patients in each group. Patients with a history of CDI, antibiotic use within 90-days of hospitalization, or co-administration of systemic antibiotics for >24 hours during definitive therapy were excluded. Primary outcome was incidence of primary CDI. Key secondary outcomes include rates of diagnostic stool testing performed and non-CDI gastrointestinal-related side effects.

RESULTS: Patients on FQ who received probiotics had fewer overall cases of CDI compared to those who did not (0% vs. 3%, $p=0.246$). Patients on FQ who received probiotics had statistically significantly fewer stool tests performed compared to those who did not receive probiotics (4% vs. 16%, $p=0.005$). Non-CDI gastrointestinal-related side effects occurred in 30% and 35% of patients receiving FQ with and without probiotics, respectively.

CONCLUSIONS: Rates of CDI in patients receiving a FQ without probiotics were consistent with current literature. Probiotic use was associated with a statistically significantly lower incidence of C. difficile stool tests performed.

Further research is warranted to optimize probiotic prescribing in high-risk patients, such as patients receiving FQ.

<https://youtu.be/DO59c8MCASc>

Presenters: Matthew Westling

TITLE: Non-Steroidal Anti-inflammatory Drug (NSAID) Use in Patients with Sleeve Gastrectomy

AUTHORS: Matthew Westling

ACPE OBJECTIVE: Identify guideline recommendations for NSAID use in bariatric surgery patients.

SELF ASSESSMENT QUESTION: What is the guideline recommendation for NSAID use in bariatric surgery patients?

BACKGROUND: The purpose of this project was to describe the use of prescription NSAIDs in sleeve gastrectomy patients and assess the impact of prescription NSAIDs on endoscopic findings and reported gastric symptoms.

METHODOLOGY: Retrospective chart review on sleeve gastrectomy patients aged 18-90 years who did not have a conversion between bariatric procedures. Patient data included post-operative NSAID prescriptions, EGD findings, and reported gastric symptoms. NSAID prescriptions and patient specific NSAID use were described along pre-defined categories. The association between receiving NSAID prescriptions and the frequency of reported gastric symptoms was analyzed using a Fischer's exact test. Statistical significance was defined as p-value 0.05) or reporting gastric symptoms ($p > 0.05$).

RESULTS: There were 190 post-operative NSAID prescriptions were distributed across 34% ($n=33$) of patients. Most prescriptions were medium dosing category (63.7% $n = 121$). High dose NSAID prescriptions had the longest day-supply on average ($\bar{x} = 62.7$ days). Average patient exposure to NSAID prescriptions was 245.3 days. Average time from gastric sleeve until first NSAID prescription was 521 days. There was no association between receiving an NSAID prescription and reporting new or worsening gastric symptoms ($p > 0.05$).

CONCLUSIONS: Current practice guidelines recommend limiting the use of NSAIDs after sleeve gastrectomy. We found about one-third of patients that underwent sleeve gastrectomy were receiving some form of post-operative NSAID. However, receiving NSAID prescriptions were not associated with reporting new or worsening gastric symptoms.

O **Evaluation of initial empiric dose reduction of tyrosine kinase inhibitors for patients with metastatic renal cell carcinoma**

Presenters: Tia Stitt

TITLE: Evaluation of initial empiric dose reduction of tyrosine kinase inhibitors for patients with metastatic renal cell carcinoma

AUTHORS: Tia Stitt, Katherine Saunders, Brooke Cottle, Amber Clemmons

OBJECTIVE: Evaluate how many patients with mRCC were initiated on reduced dose TKIs and if they experienced differences in clinical outcomes including overall survival, duration of therapy, frequency of toxicities leading to dose modification/therapy discontinuation.

SELF ASSESSMENT QUESTION: What was the most common justification for intervention(s) made for a patient's TKI therapy?

BACKGROUND: Tyrosine kinase inhibitors (TKIs) are routinely used as treatments for patients with metastatic renal cell carcinoma (mRCC). Adverse events occur frequently. Studies supporting initial lower doses of TKIs in mRCC are limited. Despite limited evidence, empiric dose reductions of TKIs for mRCC are seen in clinical practice at our institution. The purpose of this study was to evaluate the impact of starting TKI dose in patients with mRCC on various clinical outcomes.

METHODOLOGY: This was a retrospective chart review of patients with mRCC who were prescribed a TKI from January 1, 2015 - June 30, 2020 at the Georgia Cancer Center-Laney Walker campus. Eligible patients were ≥ 18 years and prescribed sunitinib, pazopanib, cabozantinib, levantinib plus everolimus, everolimus, or axitinib. Patients were divided into groups based on initial dose of TKI: full-FDA labeled dose versus reduced. Primary objective was percentage of patients who received reduced-dose TKI. Secondary objectives included evaluating the impact of initial reduced dosing of TKIs on duration of therapy, further dose reductions or interruptions, and overall survival, as well as evaluating if initial reduced dosing is associated with decreased frequency of toxicities and/or number of toxicities leading to an intervention. Patients with second or third line TKI for mRCC were evaluated descriptively for the same outcomes.

RESULTS: Overall, 63 patient charts were reviewed and only 42 patients met criteria to be included. There were 28 (66.7%) in the reduced starting dose group and 14 (33.3%) in the full starting dose group. As for the secondary outcomes, no differences were observed.

CONCLUSIONS: Further studies are needed to determine if reduced starting dose of TKIs in mRCC will allow for better tolerability without compromising efficacy.

YouTube link to AV video: <https://youtu.be/am0JqIFbOwg>

Presenters: Taylor McGhee

TITLE: Administration of PHQ-9 screening in an employee sponsored diabetes program

AUTHORS: Taylor McGhee, PharmD, Tacorya Adewodu, PharmD, BCACP, CPP, Danielle Raymer, PharmD, BCACP, CPP, Danielle Baker, PharmD, MS, BCPS, Virginia Yoder, PharmD, BCPS, BCACP, CDE, CPP, Beth Williams, PharmD, Pharmacy System Director, and Andrew Hwang, PharmD, BCPS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the processes for implementing a PHQ9 survey into an ambulatory care pharmacist's workflow.

SELF ASSESSMENT QUESTION: How does mental health impact patients with diabetes and how can pharmacists make an impact?

BACKGROUND: The primary objective of this study was to determine the capture rate of referrals for evaluation of undiagnosed or suboptimal treatment for depression in patients in an employee sponsored diabetes program. Characteristics of patients within each of the PHQ-9 groupings will also be assessed to evaluate where the largest need for care can be made. The evaluation of mental health in patients diagnosed with chronic diseases, such as diabetes, is imperative to positive outcomes. This study will aim to provide insight on how a screening tool implemented in diabetes visits with a pharmacist can help to close the depression care gap which may lead to improved outcomes for diabetes and depression.

METHODOLOGY: This retrospective, chart review study includes patients with diabetes who are enrolled in the Healthy Outcomes Partnership for Employees (HOPE) Program at Wake Forest Baptist Medical Center Pharmacy Care Clinic locations. Patients are included in the study if they have an in clinic or phone diabetes visit and receive a PHQ-9 questionnaire from October 1, 2020 to November 30, 2020. Data will be collected following the two month period. The primary endpoint will measure the proportion of patients with a PHQ-9 score indicative of depression. Secondary endpoints will measure the proportion of patients with a PHQ-9 score within each grouping of mild, moderate, moderate-severe, and severe depression; proportion of patients on treatment for depression who scored >10 points; and the number of prescriptions the patients were on for diabetes management. Exploratory endpoints will measure the types of interventions after pharmacist escalation of care and the baseline characteristics of patients within each PHQ-9 grouping.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Caitlin G Brown

TITLE: A comparison of vaccination rates to national standards in pharmacist managed patients with type 2 diabetes mellitus

AUTHORS: Caitlin Brown, Tara Koehler, Meredith Lopez

OBJECTIVE: Describe pharmacists' impact on vaccination rates.

SELF ASSESSMENT QUESTION: Pharmacist-managed diabetic patients surpassed the national goals and averages for which vaccines?

BACKGROUND: Determine the differences in vaccination rates for patients with type 2 diabetes mellitus managed by an outpatient family medicine pharmacist compared to national standards and averages by HealthyPeople 2020 and CDC.

METHODOLOGY: This retrospective, cross-sectional chart review examined if patients received any hepatitis B or PPSV23 vaccinations prior to September 2, 2020, and if they received an influenza vaccine within the last calendar year. Established patients of the outpatient family medicine clinical pharmacist as of September 1, 2020, referred to outpatient family medicine clinical pharmacist for type 2 diabetes mellitus management, diagnosis of type 2 diabetes mellitus, and age 18 to 64 were included. Exclusion criteria consists of diagnosis of type 1 diabetes mellitus, pregnancy, or 65 years of age and older.

RESULTS: 200 patients were screened for inclusion and final sample size was 141. Pharmacist-managed patients had higher rates of vaccination for PPSV23 (87.2%) and hepatitis B (41%) than the HealthyPeople2020 goals and the CDC national average. Influenza rates (61%) were lower when compared to HealthyPeople 2020 goals and not significantly different from the CDC national average. There were no statistically significant associations of health disparities with influenza vaccination rate. For every one-year increase in pharmacist management, subjects were less likely to get a hepatitis B vaccine. For every one-year increase in pharmacist management, subjects were more likely to get a PPSV23 vaccine.

CONCLUSIONS: Due to sample size, correlation between pharmacist management and vaccination rates could not be established. More research utilizing a larger sample size and examining reasons for vaccine refusal should be conducted to further understand the pharmacist role in vaccination status.

LINK: https://youtu.be/94WRd01_MXw

Y Assessing the impact of community pharmacists on diabetes knowledge, hemoglobin A1c, and cholesterol in patients with prediabetes and patients with diabetes

Room G

Presenters: Paul Dossett

TITLE: Assessing the impact of community pharmacists on diabetes knowledge, hemoglobin A1c, and cholesterol in patients with prediabetes and patients with diabetes

AUTHORS: Paul Dossett, Paige Brockington, Jennifer Elliott, Sharon Sherrer, Kevin Philippart

OBJECTIVE: Identify community pharmacists' impact on diabetes knowledge retention and overall patient outcomes

SELF ASSESSMENT QUESTION: What is a validated tool that can assess a patient's knowledge of diabetes?

BACKGROUND: The Center for Disease Control reports crude estimates of 34.2 million people in the United States had diabetes and that 88 million people are at an increased risk of being diagnosed with diabetes in 2018.

Pharmacologic agents have been the front runner for managing this disease state; however, recently more focus has been placed on disease state education and living a healthy lifestyle. The purpose of this study is to evaluate the impact community pharmacists have on patient knowledge retention, hemoglobin A1c, lipid profile, and BMI using a validated knowledge assessment tool.

METHODOLOGY: This is a prospective cohort study of patients with prediabetes and patients with diabetes at an independent pharmacy. This study will integrate aspects of knowledge retention in patients currently diagnosed or at risk for diabetes. Once patients meet inclusion criteria, patients will sign the informed consent document and be evaluated using the Diabetes Knowledge Test (DKT2) for baseline knowledge. The patient will be educated using a brief standardized education tool. Once the patient is educated, the patient will be weighed, measured, and the BMI will be calculated. Once the initial measurements are completed, the patient's hemoglobin A1c and Cholesterol (TC, HDL, LDL, and TG) will be obtained using point of care (POC) testing devices. The DKT2 will be used again to assess their post-education knowledge. At months 3, 6, and 9 the patient will repeat the DKT2, POC testing, BMI, and waist circumference measurements. Throughout the 9 months, adherence to statin therapy and therapy changes in antihyperglycemic agents will be documented.

RESULTS: In progress

CONCLUSIONS: In progress

YOUTUBE LINK TO PRESENTATION: <https://youtu.be/DJ-SJpYn--c>

R Atypical Antipsychotic Use Following Severe Traumatic Injury

Room C

Presenters: Elaina Etter

TITLE: Atypical Antipsychotic Use Following Severe Traumatic Injury

AUTHORS: Elaina Etter, Hannah X. Leschorn, Emily A. Durr

OBJECTIVE: Identify patient characteristics that increase the likelihood of receiving an atypical antipsychotic following severe traumatic injury.

SELF ASSESSMENT QUESTION: Which outcomes differed significantly between patients who received an atypical antipsychotic versus those who did not?

BACKGROUND: Critically ill patients commonly experience delirium and agitation as a manifestation of acute brain dysfunction. Patients who experience delirium are at a higher risk for increased length of stay, cognitive impairment, and death. Post-traumatic agitation is a subset of delirium that is frequently managed with atypical antipsychotics, despite limited evidence supporting their use.

METHODOLOGY: A single-center, retrospective cohort study was conducted on patients admitted following traumatic injury from January 1, 2019 through April 30, 2019. Patients were included if they were admitted to the intensive care unit (ICU) with an injury severity score (ISS) of 15 or greater and a minimum hospital length of stay of 5 days.

Exclusion criteria included baseline cognitive deficits (stroke or dementia) or an antipsychotic home medication. The primary objective was to evaluate the percent of admitted patients prescribed quetiapine, olanzapine, or ziprasidone.

RESULTS: Within this cohort, 229 patients met inclusion criteria, and 54 patients (24%) received a new-start atypical antipsychotic. In comparison to those who did not receive an atypical antipsychotic, patients tended to be younger (median 31 vs. 46 years, $p=0.032$) with higher rates of penetrating trauma (33.3% vs. 20.0%, $p=0.042$), predominantly driven by high rates of gunshot wounds in the overall population (31.5% vs. 18.3%, $p=0.039$). Patients who received an antipsychotic presented with a lower median GCS (12 vs. 15, $p<0.001$) and higher rates of urine drug screens (46.3% vs. 29.7%, $p=0.024$), with higher rates of positive drug screens (42.6% vs. 20.6%, $p<0.001$).

LINK: <https://drive.google.com/file/d/1ddJ-INecbgCy8EtJm3ZO9ehHheobjwYH/view?usp=sharing>

R Evaluation of the Role and Impact of Emergency Medicine Clinical Pharmacists (EMCPs) in the Post-Discharge Culture Review Process

Room D

Presenters: Fenan Woldai

TITLE: Evaluation of the Role and Impact of Emergency Medicine Clinical Pharmacists (EMCPs) in the Post-Discharge Culture Review Process

AUTHORS: Fenan Woldai, Nirali Naik, Fitsum Teferi

OBJECTIVE: Identify the types and frequency of interventions that were made by the EMCPs during the culture review process.

SELF ASSESSMENT QUESTION: Which types of interventions did the EMCPs have the most impact on during the culture review process?

BACKGROUND: The purpose of this study was to evaluate the role and impact of EMCPs in the follow-up culture review (FCR) process for patients discharged from a community hospital emergency department (ED). The results will be used to explore expansion of the EMCP's role in the FCR by developing an ED collaborative practice agreement.

METHODOLOGY: This was a single center, prospective, descriptive study of adult patients discharged from the ED who had a positive urine, sexually transmitted disease, throat swab, and/or wound culture post-discharge from October 2020 through December 2020. Patients were identified by a daily positive culture report. Culture re-sults were transcribed by staff to a culture callback form. The advanced practice providers (APPs) re-viewed the form and made initial recommendations. The EMCP reviewed the form along with the APP's recommendations and assessed the need for additional intervention(s). If additional intervention was required, the EMCP sought physician approval.

RESULTS: In progress.

CONCLUSIONS: In progress.

R Impact of Early Sedative Medication Choices for Ventilated Patients in the Emergency Department

Room B

Presenters: David Oliver

TITLE: Impact of Early Sedative Medication Choices for Ventilated Patients in the Emergency Department

AUTHORS: David Oliver, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: Evaluate the impact of initial sedation on clinical outcomes at a community teaching hospital.

SELF ASSESSMENT QUESTION: What effect did initial sedation with propofol in the emergency department have on duration of mechanical ventilation?

BACKGROUND: Sedation is commonly used in mechanically ventilated patients to promote ventilator compliance, prevent agitation related harm, and relieve anxiety and stress. Recent studies have focused on the effects of early light vs deep sedation in the emergency department (ED) on patient outcomes. The effects of specific initial sedative and analgesedative agent choices in the ED on patient outcomes are less defined. The purpose of this study was to determine the impact of initial sedation choices in the ED on clinical outcomes.

METHODOLOGY: The electronic health record was utilized to perform an IRB-approved retrospective chart review of ED patients who visited this institution from January 2017 to December 2019. The primary outcome was duration of mechanical ventilation. Secondary endpoints included time to delirium, hospital mortality, hospital length of stay (LOS), intensive care unit LOS, ED LOS, and whether other sedatives or analgesics were added for sedation. Sedative and analgesedative regimens that were assessed included propofol, ketamine, benzodiazepines, dexmedetomidine, and fentanyl. Other baseline characteristics were also obtained. Endpoints were analyzed using appropriate descriptive and inferential statistics.

RESULTS: Two-hundred fifty patients were included in the study. Propofol was used in 171 patients and was the most utilized initial sedative agent. The median duration of mechanical ventilation for propofol, ketamine, benzodiazepines, fentanyl and dexmedetomidine was 2.2, 3.6, 2.7, 2.1, and 1.8 days respectively ($p=0.78$). The results for each of the secondary outcomes were similar among groups.

CONCLUSIONS: No significant difference was found between initial sedative groups regarding median duration of mechanical ventilation or any secondary outcome.

Video Link: <https://youtu.be/zTFkRmdTvuc>

I Evaluation of Remdesivir and Convalescent Plasma and Their Impact on In-Hospital Mortality and Time to Discharge for Patients with COVID-19

Room I

Presenters: Brittany Bowers

TITLE: Evaluation of Remdesivir and Convalescent Plasma and Their Impact on In-Hospital Mortality and Time to Discharge for Patients with COVID-19

AUTHORS: Brittany Bowers, PharmD; Heather Gibson, PharmD, BCPS, BCIDP; Jennifer Campbell, PharmD, BCPS; Drew Kessell, PharmD, MBA, MS

OBJECTIVE: Determine the effect on in-hospital mortality and time to discharge in patients who received remdesivir or convalescent plasma therapy.

SELF ASSESSMENT QUESTION: Does the information provided support the use of remdesivir in hospitalized COVID-19 patients?

BACKGROUND: The coronavirus disease 2019 (COVID-19) pandemic led to the Emergency Use Authorization (EUA) of experimental treatment options, including remdesivir and convalescent plasma, for hospitalized COVID-19 patients. Remdesivir was FDA-approved on October 22, 2020 for the treatment of COVID-19 in adults and pediatric patients ≥ 12 years of age weighing at least 40 kg. Randomized control trials (RCTs) have been conducted to assess the benefit of remdesivir in hospitalized COVID-19 patients, however, the results of these studies have been inconsistent. Small scale studies have demonstrated safety and clinical improvement in patients receiving convalescent plasma. The objective of this study is to determine the effect on in-hospital mortality and time to discharge in patients who received remdesivir or convalescent plasma therapy.

METHODOLOGY: A retrospective observational study will be conducted to assess the effect of remdesivir and convalescent plasma therapy on in-hospital mortality and time to discharge in patients admitted to the FirstHealth of the Carolinas hospital system between April 1, 2020 to August 31, 2020. Patients greater than 18 years old with a laboratory confirmed case of COVID-19 who received one or both of the treatment options will be included in this study. Exclusion criteria will include patients who have received tocilizumab. Patients will be divided into three groups based on receiving remdesivir, plasma, or both treatment options. A subgroup analysis will be conducted on location of admission (intensive care unit vs. general medicine) and baseline characteristics such as: gender, age, ethnicity, and comorbid conditions.

RESULTS: In process

CONCLUSIONS: In progress

I Validation of Local Pseudomonas aeruginosa Risk Factors in Patients with Community-Onset Bacterial Pneumonia

Room H

Presenters: Morgan Pizzuti

TITLE: Validation of Local Pseudomonas aeruginosa Risk Factors in Patients with Community-Onset Bacterial Pneumonia

AUTHORS: Morgan Pizzuti, Bailey Smith, Chao Cai, William Lindsey, P. Brandon Bookstaver, Joseph Kohn, Majdi Al-Hasan, Hana Winders, Julie Ann Justo

OBJECTIVE: To describe validation methods for local Pseudomonas aeruginosa risk factors in patients with community-onset bacterial pneumonia.

BACKGROUND: The international management guidelines for community-acquired pneumonia encourage development and validation of institutional treatment guidelines based on local risk factors. Previous research from our health system identified local risk factors for Pseudomonas aeruginosa in adult, hospitalized patients with community-onset bacterial pneumonia. The study demonstrated that individuals with bronchiectasis, interstitial lung disease, prior airway colonization with P. aeruginosa within the last 12 months, and recent exposure to beta-lactam antibiotics within the last 3-30 days had a greater risk of P. aeruginosa pneumonia. Our institution developed local pneumonia treatment guidelines focusing on use of empiric antibiotics for patients with risk factors for P. aeruginosa. The aim of this study was to validate the local P. aeruginosa risk factors in patients with community-onset bacterial pneumonia.

METHODOLOGY: This was a retrospective, observational cohort study. Patients were screened from reports of respiratory specimens and admissions with MS-DRG codes associated with pneumonia between January 1, 2017 to March 31, 2020. Enrolled subjects were adult patients aged ≥ 18 years, admitted to Prisma Health Richland, Baptist, or Baptist Parkridge hospital campuses with: a diagnosis of pneumonia, receipt of inpatient antibiotic therapy within 48 hours after pneumonia symptom onset, and receipt of >48 hours of antibiotic therapy. Patient comorbidities, culture results, antibiotic therapy, and acute severity of illness were collected. Statistical analyses include sensitivity, specificity, positive and negative predictive value, overall accuracy and over and under treatment proportion.

CONCLUSION: Our local risk score had a modest performance with 78% overall accuracy. Our local guideline concordance increased from the pre-implementation to the post-implementation period as well as our bacterial diagnostic testing use. Future directions include prescriber education and optimization of clinical informatics.

L Pharmacist-Led Medication Reconciliation Process Improvement in a Community Hospital General Medicine Unit Room E

Presenters: Benjamin Tutterow

Title: Pharmacist-Led Medication Reconciliation Process Improvement in a Community Hospital General Medicine Unit

Authors: Benjamin Tutterow, PharmD, MSCR; Dustin Bryan, PharmD, BCPS; Susan Canady, PharmD; Melissa Steedly, PharmD; Savannah Knepper, PharmD, BCPS

Purpose/Background: Multiple studies and systematic analyses have demonstrated the importance of an accurate medication reconciliation. Cape Fear Valley Medical Center (CFVMC) is a 691 bed acute care academic medical center employing 6 emergency department pharmacy technicians responsible for conducting all medication reconciliations. Despite these services, there are still patients admitted who do not have a proper medication reconciliation completed prior to their admission to the floor, where the registered nurse is responsible for conducting the medication reconciliation. Pharmacists can be especially beneficial in conducting medication reconciliations, as they have been trained to analyze the patient to gain a comprehensive understanding of the treatment regimen, thus equipping them to make interventions when appropriate. The purpose of this study is to determine the value of a pharmacist-led medication reconciliation service at Cape Fear Valley Medical Center.

Methodology: Participants included in this study were adults 18 years of age and older admitted to a CFVMC general medicine unit. Included adult patients were admitted for 72 hours or less during the study period from October 1 to October 31, 2020 taking at least one scheduled medication prior to admission. The primary endpoint was the number of interventions related to medication reconciliation events conducted by a pharmacist. Secondary endpoints were types of interventions performed, amount of cost avoidance associated with each intervention, amount of time required to perform the medication reconciliation, and percentage of accepted interventions. Descriptive statistics were used to analyze the data of this study.

Results: 17 total interventions were performed and accepted over the study period involving 3 intervention subtypes; drug/disease (5), drug/dose (4), and drug/drug (1). Overall cost avoidance was \$19000, mean time to perform the medication reconciliation was 21.2 minutes, and 58.8% of interventions were accepted.

Conclusions: Pharmacist-led medication reconciliation resulted in few interventions, likely due to the study location and efficient emergency department pharmacy technicians. An inadvertent benefit in staff pharmacist workflow resulted from the use of documentation strategies developed in study.

O Evaluation of a Titration Protocol for Paclitaxel Infusions in the Gynecology Oncology Population Room A

Presenters: Jacob Calahan

TITLE: Evaluation of a Titration Protocol for Paclitaxel Infusions in the Gynecology Oncology Population

AUTHORS: Jacob Calahan, Allison Guyton

OBJECTIVE: Describe the rationale for titrating initial paclitaxel infusions and the impact a titration has on the incidence of infusion-related reactions.

SELF ASSESSMENT QUESTION: Does titrating paclitaxel decrease the incidence of infusion-related reactions?

BACKGROUND: The purpose of this study is to implement a titration protocol for initial cycles of paclitaxel for gynecology oncology patients in order to reduce the incidence of infusion reactions.

METHODOLOGY: A retrospective chart review included 206 encounters among 97 adult patients treated with carboplatin or paclitaxel. All encounters occurred from July 1, 2019 through December 31, 2019 and only included patients with a gynecologic malignancy. Data collection included demographics, comorbidities, chemotherapy regimen, and history of malignancy. Information on reactions was collected through documentation within the EHR, which included symptoms, management of reaction, and re-initiation of chemotherapy when applicable. A paclitaxel titration protocol was designed based on a literature review and an anonymous survey of oncology nurses. The protocol was approved by gynecologic oncologists, clinical oncology pharmacists, and oncology nurses. Nurses and pharmacists at our infusion center were educated on the titration protocol. The titration is being utilized during the first two cycles. Following implementation, data is being collected to assess the impact of titration on the incidence of infusion reactions.

RESULTS: Prior to protocol implementation, the overall incidence of paclitaxel-related infusion reactions was 12.1% (14/106). Each paclitaxel-related infusion reaction occurred during cycle 1 (N = 12, 85.8%) or cycle 2 (N = 2, 14.2%). Thus, the incidence of reaction to paclitaxel among cycle 1 and 2 was 24.6% (14/57). The protocol was implemented on February 8, 2021. Although post-protocol data is being collected, 8 weeks of data demonstrate infusion-related reactions to paclitaxel during all cycles and the first 2 cycles have decreased to 4.8% (2/42) and 8.3% (2/24), respectfully. Results for post-protocol implementation are pending.

CONCLUSIONS: In Progress

Presenters: Leanna Borges

TITLE: Assessment of Insulin Utilization for Early Post-transplant Glycemic Control in Liver Transplant

AUTHORS: L Borges, K Gutierrez, J Banbury, T Sparkman

OBJECTIVE: Describe the factors associated with requiring insulin after liver transplant

SELF ASSESSMENT QUESTION: What are some risk factors for requiring insulin after liver transplant?

BACKGROUND: Transient hyperglycemia after liver transplant (LT) is common due to the use of high-dose steroids at the time of transplant, but some patients may progress to true diabetes mellitus (DM). The purpose of this study is to assess insulin prescribing practices after LT and categorize the duration of insulin use in patients with no prior history of DM.

METHODOLOGY: This study is a single-center, retrospective cohort analysis of liver transplant recipients between July 1, 2018 to June 1, 2019 at the University of Alabama at Birmingham Hospital. The primary outcome is the proportion of patients without prior history of DM who were discharged on insulin and required insulin at 3 months post-discharge

RESULTS: A total of 107 patients were included in the preliminary analysis. Approximately 18% of patients were on an antidiabetic medication prior to LT. At discharge, 18 patients without a history of DM were prescribed insulin after LT. Of these patients, 26.7% required insulin at the 3 month follow-up. Twelve months after discharge, four remained on insulin.

CONCLUSIONS: The results of this study suggest that the majority of patients with no prior history of DM do not require long-term insulin therapy after LT. Of note, the use of oral antidiabetic medications in this study was low warranting further exploration regarding the benefit of these agents in this population.

Presenters: Priscilla Burgess

TITLE: Impact of Pharmacist-led Comprehensive Medication Reviews in a Geriatric and Palliative Care Pharmacy Service

AUTHORS: Priscilla Burgess, Melissa Pendoley, Jasmine Peterson, Suzanne Booth

OBJECTIVE: Determine the number of medication changes made per Geriatric or Palliative Care Pharmacy Service comprehensive medication review (CMR) within Kaiser Permanente Georgia (KPGA).

SELF ASSESSMENT QUESTION: What types of interventions can pharmacists make during Geriatric or Palliative Care CMRs?

BACKGROUND: Clinical pharmacy specialists (CPS) are well positioned to provide optimal patient care through completion of CMRs. Geriatric and palliative care patients are vulnerable to medication-related problems due to polypharmacy. The Geriatrics and Palliative Care Clinical Pharmacy Service at KPGA completes CMRs prior to initial consultation appointments with providers. The purpose of this study is to assess the number of medication changes made per CMR as a result of CPS intervention to guide future changes to workflow.

METHODOLOGY: This cross-sectional study includes KPGA members that received a CMR from a Geriatric and Palliative Care CPS between July 1, 2019 and December 31, 2019. Members were excluded if the CMR was completed by a pharmacy resident or if the CMR took place after the Geriatric or Palliative Care consultation appointment. The primary outcome is the number of medication changes made per Geriatric or Palliative Care CMR. Secondary outcomes include the method of medication change, the recommendation acceptance rate, the type of medication change made, and the acceptance rate of each type of intervention.

RESULTS: A total of 30 Geriatric CMRs and 30 Palliative care CMRs were reviewed. Approximately 8 medication changes were made per Geriatric or Palliative Care CMR, 7 of which were per collaborative practice agreement and 1 of which was by recommendation to provider. Approximately 2 recommendations were sent to provider per CMR, of which almost 34% were accepted.

CONCLUSIONS: Overall, the majority of medication changes made were per collaborative practice agreement. Greater than one-third of recommendations sent to providers were accepted.

Impact of pharmacist-led comprehensive medication reviews in a geriatric and palliative care pharmacy service from Priscilla Burgess on Vimeo.

B IMPACT OF VIRTUAL PHARMACIST INTERVENTION ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ADMISSION RATES FOR EXACERBATIONS

Room J

Presenters: Kelsey Cumbass, PharmD

TITLE: IMPACT OF VIRTUAL PHARMACIST INTERVENTION ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ADMISSION RATES FOR EXACERBATIONS

AUTHORS: Kelsey Cumbass, Nathaniel Swanson, Deborah Hobbs

OBJECTIVE: Describe the purpose of implementing a virtual pharmacist-led COPD clinic and the possible outcomes of such implementation.

SELF ASSESSMENT QUESTION: What are the limitations of implementing a virtual pharmacist-led COPD clinic?

BACKGROUND: Approximately 16 million Americans have been diagnosed with COPD and millions more suffer without a formal diagnosis. COPD was the fourth leading cause of death in the United States in 2017 and the second most common cause of admission for an ambulatory care sensitive condition (ACSC) from 2018-2019. The ACSC Observed/Expected (O/E) ratio for COPD measures the actual hospitalizations for ACSC divided by the predicted number of hospitalizations. The COPD ACSC O/E admission ratio for CVVAMC from January to March 2019 was above the national average (1.0) at 1.26 indicating the facility has seen more hospitalizations due to COPD than expected. The COVID-19 pandemic has posed new challenges in conducting necessary face-to-face clinic visits while weighing the risks of potentially exposing high-risk patients to the virus in the process. Therefore, the purpose of this study is to implement a virtual pharmacist-led COPD clinic and determine if this will decrease both the O/E ratio and the number of hospitalizations due to COPD exacerbations.

METHODOLOGY: This quality improvement project was approved by the Pharmacy and Therapeutics committee in September 2020. Veterans were identified by the intelligent preventative care database based on their ACSC risk score. This database identifies Veterans who are higher risk than 95% of the facility patients for COPD admission. Eligible Veterans' charts were reviewed, and the Veterans were contacted by either telephone or video call. A custom COPD template was utilized, and progress notes were recorded into the computerized patient record system. Initial visits began taking place November 2020. Virtual follow-up visits were conducted at four weeks and twelve weeks from initial intervention in order to reassess the Veteran's COPD management to include inhaler technique, smoking status, and vaccination status post-intervention.

RESULTS: As presented.

CONCLUSIONS: As presented.

C Optimizing Direct Oral Anticoagulant (DOAC) therapy using a patient population management tool: A quality improvement project

Room D

Presenters: Jenna Sewell

TITLE: Optimizing Direct Oral Anticoagulant (DOAC) therapy using a patient population management tool: A quality improvement project

AUTHORS: Jenna Sewell, Frances Hoffman, Morgan Tolley, Nidia Edwards, Mary Anne Ford, Tiffany Jagel

OBJECTIVE: Address patients flagged through the DOAC Dashboard due to meeting specified criteria outside the recommendations for DOAC use.

SELF ASSESSMENT QUESTION: Which metric(s) can be used to evaluate whether DOAC use is safe and effective?

BACKGROUND: The purpose of this project is to determine the best course of action to ensure optimal patient safety and proper utilization of the DOAC Dashboard through improvement of internal standard operational procedures and policies.

METHODOLOGY: This project will look at all patients identified via the DOAC Dashboard from August 2020 to February 2021 requiring a possible intervention for active NSAID use, dosing, notable hemoglobin, platelets or liver function tests, critical drug interactions, bariatric surgery, or valve replacement. Each anticoagulation Clinical Pharmacy Specialist (CPS) will document the type of flag, intervention recommended, and time spent. Data on the type of flag, the number of flags addressed, and the rate of interventions initiated will be collected using Excel and descriptive statistics will be used to evaluate measures.

RESULTS: A total of 448 flags on the DOAC Dashboard were addressed by CPSs between the months of August and December 2020. Of the total number of flags addressed, 41% were identified by CPSs as requiring intervention.

DOAC dosing issues and active NSAID use with a DOAC represented 47% and 27% of the flags addressed, respectively. The average amount of time spent to address the flags was around 13 minutes.

CONCLUSIONS: CPSs were able to address the minimum requirement of 5 DOAC Dashboard flags per week. The number of flags trended down for most metrics with the exception of dosing flags and notable hemoglobin, platelets, and liver function tests, for which the rate of flags being added to the dashboard may be faster than the rate at which the flags are addressed. A defined update to the plan to address flags would be needed to ensure that all flags can be addressed in a timely manner moving forward.

Presenters: Jeffery Lo

Title: Outcomes in Renal Transplant Patients with COVID-19

Authors: Jeffery Lo, Kayla Nichols, Jolie Gallagher, Sara Gattis, Arpita Basu

Objective: Describe the mortality rate of critically ill renal transplant patients with COVID-19

Self Assessment Question: Which critically ill population had the highest mortality rate?

Background: Many studies regarding COVID-19 infections in renal transplant patients are case reports and small-scale reviews focused on the management of infection; less data is available regarding mortality rate and risk factors for developing severe disease and death. The purpose of this study is to compare the mortality rate of critically ill renal transplant patients with COVID-19 infection to other critically ill patient populations with COVID-19 infection.

Methodology: This is a retrospective chart review performed at Emory Healthcare from 03/01/2020 – 08/31/2020.

Renal transplant patients were compared with other solid organ transplant (SOT), immunocompromised, and non-immunocompromised patients. The primary outcome is in-hospital mortality. Secondary outcomes include hospital and intensive care unit (ICU) length of stay, changes in immunosuppression, new thrombotic/bleeding events, rate of concurrent infections, rate of renal replacement therapy, loss of allograft in SOT, and readmission rate.

Results: Mortality rates were 66.7%, 25%, 33.3%, and 20% for renal transplant, other SOT, immunocompromised, and non-immunocompromised patients, respectively. There was a significant difference in rates between renal transplant and non-immunocompromised patients ($p = 0.014$) and between renal transplant patients and patients of all other groups combined ($p = 0.0084$). There were also significant differences in length of stay, changes in immunosuppression, renal replacement therapy, and mechanical ventilation.

Conclusions: Critically ill renal transplant patients with COVID-19 had a higher observed mortality rate than all other groups in this study.

YouTube Link: <https://youtu.be/DMoS6zyE9sk>

Presenters: Aaron Henslee

TITLE: Pharmacist driven quality improvement of intravenous alteplase use in ischemic stroke patients at a large community hospital

AUTHORS: Aaron Henslee, Nellie McKee, Jeremy Ray

OBJECTIVE: The objective of this project is to streamline the current process of administering alteplase in ischemic stroke patients at our facility, with the goal of reducing our facility's door to tPA time.

SELF ASSESSMENT QUESTION: Which of the following is/are contraindications to using intravenous alteplase in patients with ischemic stroke? a. Daily use of an oral anticoagulation agent b. A blood pressure of 198/122mmHg c. Recent intracranial bleeding d. All of the above

BACKGROUND: The objective of this project is to streamline the overall process of administering alteplase in ischemic stroke patients, with the goal of reducing our facility's door to tPA time.

METHODOLOGY: A retrospective chart review was performed on every stroke alert that was called at our facility's emergency department from June 2020 through December 2020 ($n = 497$). A early tPA mixing criteria was implemented April 7, 2021 for neurology nurse practitioners to use while assessing patients.

RESULTS: Of the 497 patients who were evaluated, eleven patients received tPA with an average door to tPA time of sixty three minutes.

CONCLUSIONS: In process. Data collection will continue through June 7, 2021.

Presenters: Justine Nurse-McLeod

TITLE: Integrating an Age-Friendly Health System Initiative into Geriatric Primary Care

AUTHORS: Justine Nurse-McLeod, Lawanda Kemp, Kimberly Manns, Anna K. Mirk

OBJECTIVE: Evaluate the impact of a geriatric-focused model of care on geriatric outcomes within a primary care setting

SELF ASSESSMENT QUESTION: Does routine clinical pharmacy specialist consultation within a geriatric primary care setting facilitate deprescribing of potentially inappropriate medications or reduction of polypharmacy?

BACKGROUND: Veterans in the United States comprise a population that is older and frequently requires more complex care than the general population. In order to better manage the unique health challenges and needs of older veterans, the Geriatric and Extended Care department at the Atlanta Veterans Affairs (VA) Health Care System adopted the 4Ms Framework, a set of evidence-based elements of high-quality care for older adults centered around four core components: What Matters, Medication, Mentation and Mobility.

METHODOLOGY: Study methods were adapted from Integrated Management and Polypharmacy Review of Vulnerable Elders (IMPROVE), an ongoing initiative developed by the Atlanta VA Geriatric Research, Education, and Clinical Center (GRECC) to improve medication management in older veterans using a pharmacist-led comprehensive medication management visit. Criteria for program inclusion included new referral for geriatric consultation within the Atlanta VA Geriatric Patient Aligned Care Team or Virtual Geriatrics service between August 24, 2020 and March 24, 2021. Aimed at ensuring the use of age-friendly medications, a geriatric clinical pharmacy specialist (CPS) conducted a comprehensive medication review to include medication reconciliation, evaluation of medication indication, safety and appropriateness and adherence and health literacy screenings, prior to the first visit with the geriatrician.

Recommendations were relayed via the electronic medical record. The primary project outcome was the number of medications reduced. Secondary outcomes included the number of potentially inappropriate medications (PIMs) discontinued, number of CPS recommendations made and identified barriers to adherence. Data was collated and analyzed using descriptive statistics and the paired Student's t-test.

RESULTS: In total, 29 veterans were identified for study inclusion between 8/24/20 and 3/24/21. The mean age was 78.2 (range 63-92) and an average of 12 (range 5-24) medications were being taken prior to CPS intervention. The primary outcome resulted in a mean reduction of 2 in the number of medications being taken (range 0-8). The mean number of PIMs reduced was 1.1 (range 0-6). An average of 1.7 (range 0-3) barriers to adherence were identified and the mean number of medication changes recommended by the CPS was 1.7 (range 0-5).

CONCLUSIONS: Among older veterans receiving care in a geriatric outpatient setting, integration of the 4Ms Framework, with a focus on medication safety by a geriatric CPS, resulted in identification of barriers to adherence and an overall reduction in polypharmacy and PIMs.

Video Link: https://drive.google.com/file/d/1B4A2BwTt_o5GpD9HUuSELaDiPHapK8Y/view?usp=sharing

Presenters: Cassandra Henry

TITLE: Comparison of in-hospital mortality in COVID-19 patients treated with tocilizumab

AUTHORS: Cassandra Henry, Geren Thomas, Daniel Chastain, Maura Hall

OBJECTIVE: Describe the impact of tocilizumab on in-hospital mortality in patients age < 45 years, 45 – 64 years, and ≥ 65 years.

SELF ASSESSMENT QUESTION: Among the patients in this study, which age group has the highest in-hospital mortality rate after treatment with tocilizumab?

BACKGROUND: Assess the effect of tocilizumab on mortality among different age groups of patients with COVID-19

METHODOLOGY: This study is a single center, retrospective chart review performed at a community hospital. Patients with laboratory confirmation of SARS-CoV-2 infection and a COVID-19 diagnosis who received at least one dose of intravenous tocilizumab between April 1, 2020 and August 31, 2020 were included. Patients were excluded from this study if they received tocilizumab for an indication other than COVID-19. The primary outcome of the study is the rate of in-hospital mortality among patients ages < 45 years, 45 – 64 years, and ≥ 65 years. Secondary outcome measures include the rate of intubation after dose administration, time from last dose administration to discharge, and hospital length of stay. Data was analyzed using descriptive statistics.

RESULTS: 99 patients were included in the study with 10 patients < 45 years, 48 patients 45 – 64 years, and 41 patients ≥ 65 years. Baseline characteristics were similar among the three groups with exceptions. The in-hospital mortality rate was 38% in the 45 – 64 years group compared to 20% and 32% in the < 45 years and ≥ 65 years groups respectively. 16% of patients were intubated after dose administration, and the median time to discharge and hospital LOS were lowest in the < 45 years age group.

CONCLUSIONS: The in-hospital mortality rate was highest among patients in the 45 – 64 years age group. These findings were likely due to differences in disease severity and pharmacologic standard of care.

I Impact of combination therapy and other risk factors on outcomes in persistent MRSA bloodstream infections

Room H

Presenters: Erin Bendock

TITLE: Impact of combination therapy and other risk factors on outcomes in persistent MRSA bloodstream infections
 AUTHORS: Erin Bendock, PharmD; Mahmoud Shorman, MD; Laurence Wright, PharmD; Samantha Yeager, PharmD, BCPS; Michael Veve, PharmD, MPH

OBJECTIVE: Discuss combination therapy and other modifiable risk factors that may impact patient outcomes.

SELF ASSESSMENT QUESTION: What effect on patient outcomes was observed in patients who received combination therapy?

BACKGROUND: Combination methicillin-resistant Staphylococcus aureus (MRSA) therapy is often utilized in complicated MRSA bloodstream infections (BSIs) with persistently positive cultures, though there is limited published literature regarding optimal timing of initiation, duration of combination, and patient selection. The objective of this study was to identify risk factors for clinical failure in patients with persistently positive MRSA BSIs, with a focus on combination anti-MRSA therapy.

METHODOLOGY: Retrospective cohort evaluated adult hospitalized patients with complicated MRSA BSIs from 1/2016-7/2020. Additional inclusion criteria were: positive MRSA blood cultures >3 days, receipt of anti-MRSA therapy ≤48 hours of bacteremia identification. Exclusion criteria: lack of repeat blood cultures drawn or polymicrobial BSI.

The primary endpoint was a composite of 90-day clinical failure: infection-related readmission, relapse of infection, or all-cause mortality. The exposure of interest was combination anti-MRSA therapy.

RESULTS: 193 patients were included: 83 (43%) experienced 90-day clinical failure, 110 (57%) did not. Baseline characteristics were comparable between groups; the median (IQR) age was 46 (35-59) years, 60% were men, and 52% reported active or a history of injection drug use. The most common infection types were: endocarditis (43%), bone/joint (29%), skin (12%), and other (18=7%). Combination anti-MRSA therapy was used in 72 (37%) patients and initiated a median (IQR) 7.6 (5.4-10.3) days from initial positive culture; the most common regimen was daptomycin with ceftaroline (46, 64%). 32 (45%) of patients who received combination anti-MRSA therapy were prescribed this therapy for the remainder of the treatment course. There was no significant difference in 90-day clinical failure in patients who received combination anti-MRSA therapy compared to those who did not (44% vs. 42%, P=0.72).

Patients that received combination therapy had a significantly faster median (IQR) time to culture clearance compared to those who received monotherapy (11 [9-16] days vs. 7 [5-9] days, P<0.001).

L Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

Room E

Presenters: Kristin C. Davis, PharmD, MBA

TITLE: Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

AUTHORS: Kristin Davis, Lindsay Reulbach, John Schrank, Alex Ewing, Emily Johnson

OBJECTIVE: Identify the outcomes of patients with variceal bleeding treated with less than 7 days of antibiotics for the prevention of SBP

SELF ASSESSMENT QUESTION: True or False: Less than 7 days may be a reasonable duration of antibiotics for the prevention of SBP in variceal hemorrhage

BACKGROUND: Spontaneous bacterial peritonitis (SBP) is a serious complication of variceal gastrointestinal hemorrhage. The American Association of the Study of Liver Diseases (AASLD) recommends a maximum of 7 days of antibiotics after a variceal hemorrhage to prevent SBP; however, recent studies have suggested shorter durations of prophylactic antibiotics. The objective of this study was to determine if less than 7 days of antibiotic prophylaxis is noninferior to 7 or more days in patients with cirrhosis and upper gastrointestinal bleeding (UGIB).

METHODOLOGY: This study was a single-center, retrospective cohort conducted from August 2019 to August 2020 that included patients who received treatment for upper gastrointestinal bleeding (UGIB) due to variceal hemorrhage and antimicrobial therapy for prevention of SBP during hospitalization. The primary outcome was in-hospital mortality. Secondary outcomes included SBP within the first 30 days after UGIB, 30-day mortality, 30-day readmission rate, incidence of rebleeding at 7 and 30 days, incidence of Clostridioides difficile infection, and intensive care unit and hospital length of stay.

RESULTS: In Progress

CONCLUSIONS: In Progress

N Effect of cannabidiol (Epidiolex®) on seizure related emergency department (ED) visits and hospital admissions

Room F

Presenters: Aaron Michael Chase

TITLE: Effect of cannabidiol (Epidiolex®) on seizure related emergency department (ED) visits and hospital admissions

AUTHORS: Aaron Chase, Olubusola Fowowe, Renad Abu-Sawwa

OBJECTIVE: Discuss effect of cannabidiol on seizure-related ED visits and hospital admissions in patients at our institution.

SELF ASSESSMENT QUESTION: What are the FDA approved indications for Epidiolex?

BACKGROUND: Intractable seizure disorders are common and lack many effective treatment options. Many have poor outcomes and patients frequently utilize healthcare resources. Cannabidiol was recently approved for use in some intractable seizure syndromes and provides a highly effective treatment option. There is no data on how cannabidiol effects healthcare utilization. Our aim was to determine how cannabidiol effects seizure-related hospital admissions and ED visits.

METHODOLOGY: Methods: This single center retrospective cohort study included patients >1 year old and excluded those who participated in a clinical trial of cannabidiol or were on therapy

P Impact of clozapine complete blood count (CBC) monitoring overrides on adverse effect rates during COVID-19

Room G

Presenters: Ashley Glass

TITLE: Impact of clozapine complete blood count (CBC) monitoring overrides on adverse effect rates during COVID-19

AUTHORS: Ashley Kang Glass and Hannah E. Rabon

OBJECTIVE: To describe the impact on medication safety and efficacy when dispensing clozapine without standard lab monitoring during COVID-19.

SELF ASSESSMENT QUESTION: Did extended lab monitoring impact the frequency of clozapine associated adverse events?

BACKGROUND: As part of the Risk Evaluation and Mitigation Strategy (REMS) requirement to prescribe clozapine, providers must obtain a CBC either weekly, bimonthly, or monthly depending on length of treatment. This project evaluated the impact of a national REMS override allowing certified prescribers to dispense clozapine without standard lab monitoring during the COVID-19 pandemic.

METHODOLOGY: Medical charts of Veterans prescribed clozapine from March 1, 2020 – December 1, 2020 were reviewed to determine if patients received a lab override due to COVID-19. Patient-specific characteristics and the frequency of adverse events such as neutropenia, infections, emergency-department (ED) visits, and hospitalizations were collected. Incidence of events were reported from the time of the first monitoring override to present and compared to incidence rates in the year prior to the first override. Significant changes in frequency of adverse events were determined using matched-pairs tests.

RESULTS: All Veterans prescribed clozapine (n=11) received overrides to extend therapeutic monitoring. The average monitoring frequency was 15 weeks. Therapy was primarily managed by psychiatric pharmacists through telephone appointments. Patient-specific characteristics did not appear to influence override decisions. Extended monitoring intervals did not result in significant changes in rates of ED visits, medical or psychiatric hospitalizations, infections, or neutropenia.

CONCLUSIONS: There were no significant differences in the rate of adverse outcomes between REMS recommended monitoring and extended monitoring. These safety and efficacy results will help inform ongoing clozapine prescribing and monitoring practices during the COVID-19 pandemic and beyond. Conclusions are limited by the study's small homogenous population. Future research could include data-pooling across healthcare systems that implemented CBC overrides to confirm these results.

Presenters: Erin Sherwin

TITLE: Impact of Dashboard Utilization on Recombinant Zoster Vaccination Rates

AUTHORS: Erin Sherwin, PharmD, Courtney Berg, PharmD, Kendra Brookshire, PharmD

OBJECTIVE: Describe how monitoring patients via a dashboard can assist in closing vaccination gaps.

SELF ASSESSMENT QUESTION: What are important factors to consider in immunization documentation?

BACKGROUND: Assess the use of a dashboard to close immunization gaps for patients who have received the first dose of the recombinant zoster vaccine.

METHODOLOGY: We conducted retrospective chart review of electronic medical records via a dashboard of patients in a primary care clinic who have received at least one documented dose of the recombinant zoster vaccine (RZV) prior to 11/30/2020. Charts were reviewed for process vulnerabilities such as lack of documented receipt of any dose in the series. Nurses and providers were educated on best practices for vaccine ordering and documentation using the RZV clinical reminder tool in the Computerized Patient Record System (CPRS). Medical support assistants (MSAs) were then instructed to schedule patients due or overdue for the second dose of the series. The number of patients with documented completed RZV immunization series prior to examining the dashboard will be compared to the number with documented completed series after.

RESULTS: Research is currently ongoing. Through review of the dashboard, 266 patients were identified in a primary care clinic who have received at least one dose of RZV and 153 patients noted as due for a second dose as of 11/30/2020. 129 were overdue to complete the series being more than 6 months out from the date of receiving the first dose. 19 patients had follow-up appointments in the blue clinic scheduled as detected by the dashboard. After chart review, 13 patients were identified who were flagged as due for the second dose by the dashboard but who had in fact completed the series due to missing documentation of one dose. The remaining patients who had not completed the series were originally scheduled for appointments with primary care within 6 months, but due to precautions taken to mitigate the spread of COVID-19, those appointments were converted to telehealth appointments. Implementation of dashboard monitoring to close immunization gaps is ongoing.

CONCLUSIONS: Dashboard monitoring of multi-dose series immunizations could help ensure patients receive doses of vaccines on schedule and prevent illness.

Presenters: Abigail Wiggins

TITLE: Implementation of a Clinical Decision Support Tool for the Treatment of Hypertension in a Family Medicine Clinic

AUTHORS: Abigail Wiggins, PharmD, MPH; Rebeca Higdon, MPH; Julie Jeter, MD; Shauntá Chamberlin, PharmD, BCPS, FCCP

OBJECTIVE: Assess the impact of a new clinical decision support tool (CDS) on appropriateness of hypertension management.

BACKGROUND: Nearly half of adults in the United states have blood pressures that constitute a hypertension diagnosis. A large percentage of patients with hypertension are not on any pharmacotherapy and many are on inappropriate or inadequate regimens. The purpose of this study is to assess the impact of a clinical decision support (CDS) tool on adherence to guideline directed hypertension management. The CDS tool provides guidance for hypertension pharmacotherapy initiation and continuing management.

METHODOLOGY: This study is a pre- and post-implementation, cross-sectional review of adult patients seen in Family Medicine clinic prior to and following implementation of the hypertension CDS tool. Pre-implementation data collection was conducted for patients with hypertension in their problem list seen January 2020- February 2020. Post-implementation data collection was conducted for patients with hypertension in their problem list seen January 2021- February 2021. Resident, faculty, and nursing education was provided prior to CDS tool implementation to ensure understanding of the tool and integration into practice. Descriptive statistics will be utilized to characterize prescribing trends.

LINK: <https://youtu.be/kO6piBISQkg>

Presenters: Lydia McKay

Title: Impact of RAS Agent Management on Vasoplegia during Cardiac Surgery

Authors: Lydia McKay, Marc Reichert, Monty Yoder

Presentation Objective: Understand the impact of RAS agents on the rate of vasoplegia in patients undergoing cardiac surgery.

Self-Assessment: Should RAS agents be held at least 48 hours before cardiac surgery to lower the rate of vasoplegia?

Background/Purpose: Agents affecting the renin angiotensin system (RAS) have been documented to be a risk factor for vasoplegia in patients undergoing cardiopulmonary bypass surgery, though optimal pre-operative management remains unclear. This study assessed the relationship between the time of discontinuation of RAS agents and the incidence of vasoplegia after cardiac surgery.

Methodology: This project was a single center, retrospective, cohort study designed to determine if time of discontinuation of RAS agent before cardiac surgery has an impact on the incidence of vasoplegia. Using the Wake Forest Baptist Medical Center (WFBMC) cardiothoracic surgery database, a comprehensive list of high risk cardiopulmonary bypass surgeries at WFBMC between January 2018 and December 2020 was obtained and screened for study eligibility. Demographic data (patient age, gender, weight, height, and ethnicity) and baseline characteristics (surgery type, case posting, patient baseline ejection fraction, bypass time, cross-clamp time, deep hypothermic circulatory arrest time, first recorded mean arterial pressure (MAP) in the operating room, RAS agent prior to surgery and RAS agent discontinuation time) were obtained. Stop dates of the RAS agent were determined using the pre-surgery admission medication reconciliation, surgery clinic notes and inpatient medication administration record. The primary endpoint was the rate of vasoplegia in each group, defined as patients with a MAP of less than 65 mmHg requiring at least 10 mcg/minute of norepinephrine and 0.03 units/minute of vasopressin in the operating room or 24 hours post-surgery.

Results: Patients with a RAS agent held 48 hour prior to surgery had a 16.8% incidence of vasoplegia compared to 14.3% of patients with a RAS agent held less than 48 hours before surgery (P= 0.64)

Conclusions: Discontinuing a RAS agent 48 hours before cardiopulmonary bypass surgeries does not appear to have a significant impact on the incidence of vasoplegia

Link to presentation: <https://www.youtube.com/watch?v=QEQpNWbwhtg>

Presenters: Tabitha Brown

TITLE: Effectiveness of a treatment pathway for the management of febrile neonates in the emergency department of an academic children's hospital

AUTHORS: Tabitha Brown, Renee Hughes, Andrea Gerwin

OBJECTIVE: Identify the recommended initial antibiotics and dose selection for the empiric treatment of febrile neonates.

SELF ASSESSMENT QUESTION: What is the recommended initial meningitic dose of ampicillin to empirically treat temperature labile neonates?

BACKGROUND: Emergency departments use evidence-based treatment pathways to guide clinicians in the use of diagnostic testing and standardize treatment of febrile neonates. The purpose of this study was to evaluate the initial management of neonates presenting to the emergency department with temperature instability, implementation of an institution specific treatment pathway, and to review the use of recommended antibiotics, meningitic doses, and available diagnostic testing.

METHODOLOGY: This is an Institutional Review Board approved, single center, retrospective, observational study performed at an academic children's hospital. Chart review was utilized to identify patients aged 28 days or younger with temperature instability by history before arrival or measured in the emergency department during triage. This study compares management of febrile neonates pre-implementation (August to December 2019) and post-implementation (August to December 2020) of the treatment pathway at the study institution.

R High-dose heparin versus weight-adjusted low-molecular weight heparin for venous thromboembolism prophylaxis in critically ill obese patients

Presenters: Amanda Seals

TITLE: High-dose heparin versus weight-adjusted low-molecular weight heparin for venous thromboembolism prophylaxis in critically ill obese patients

AUTHORS: Amanda Seals, Emily Bowers, Eric Shaw, Audrey Johnson

OBJECTIVE: The objective of this study is to determine the effectiveness of VTE prevention between high-dose heparin and weight-adjusted low-molecular-weight heparin in critically ill obese patients.

SELF ASSESSMENT QUESTION: Is there a difference in efficacy between high-dose heparin and weight-adjusted low-molecular-weight heparin for the prevention of VTE in critically ill obese patients?

BACKGROUND: Hospitalized patients are at an increased risk of venous thromboembolism (VTE) with obesity being an additional substantial risk factor. Heparin and low-molecular-weight heparin (LMWH) are both used for VTE prophylaxis in critically ill patients. Heparin 7,500 units subcutaneous every 8 hours or LMWH 0.5 mg/kg/day are used in obese patients for VTE prophylaxis. There is currently limited evidence for a preferred regimen or optimal dose adjustments in obese patients.

METHODOLOGY: This was a single-center, retrospective, institutional review board approved study conducted from July 30, 2015 – January 24, 2021. Adult obese patients who received high-dose heparin (7500 units every 8 hours) or weight-adjusted LMWH (0.5 mg/kg/day) were eligible for study inclusion. Exclusion criteria included pregnant patients, incarcerated persons, patients with clotting disorders, trauma patients, orthopedic patients, and CoVID-19 positive patients. The primary outcome was incidence of VTE during hospital stay. Secondary outcomes included hospital length of stay, hospital mortality, and bleeding. Subgroups included admitting ICUs (medical ICU, surgical ICU, or cardiovascular ICU) and patients with a BMI > 50.

RESULTS: There was a total of 1602 patients screened and 94 patients met inclusion criteria. Of this sample, 47 patients were included in the heparin group and 47 patients were included in the LMWH group. No significant difference in the incidence of VTE was noted between groups: 2 (4%) patients in the high-dose heparin group versus 1 (2%) in the weight-adjust LMWH group ($p=1$). There was no significant difference in the length of stay, hospital mortality, and bleeding between groups. The incidence of VTE did not differ between groups based on ICU subgroup or within patients with a BMI > 50.

CONCLUSIONS: There was not a significant difference in the incidence of VTE between high-dose heparin and weight-adjusted LMWH in this obese critically ill population. <https://youtu.be/0Qb1HKeXZxY>

Presenters: Autumn N. Neff

TITLE: Pharmacy Student Attitudes towards a Career in Older Adult Care

AUTHORS: Autumn N. Neff, PharmD, MBA, CPP; Tasha Woodall, PharmD, BCGP, CPP; Mollie Scott, PharmD, BCACP, CPP; Shannon Rice, PharmD, BCGP

OBJECTIVE: Determine why current pharmacy students are or are not interested in pursuing a career or post-graduate training in geriatric and what influences this.

INTRODUCTION: The United States is facing a rapid rise in the number and proportion of older adults comprising its general population. The workforce prepared to meet the challenges of the aging populace, however, is stagnating or even decreasing. An additional 24000 geriatricians will be required nation-wide by 2030 to meet the healthcare needs of older adults. Further, for the 2020 appointment year, only half of geriatric medicine fellowship positions were filled, and currently, there is limited assessment of the influences contributing to future physicians' attitudes towards careers specialized in older adult care. While Geriatric Post-Graduate Year 2 (PGY2) trained pharmacists could help to extended specialty services for the older adult population, fewer than 30 geriatric pharmacy residency programs are currently available. Previous studies have assessed pharmacy students' attitudes toward older adults, an evaluation of the factors that inform or predict students' interest in pursuing a career in geriatrics has not been published. The primary purpose of this study is to examine the reasons that current pharmacy students are interested or not interested in pursuing a career or post-graduate geriatrics training, and to evaluate factors that influences this.

METHODS: This is a prospective, qualitative research study designed with two phases. The first phase consisted of 60-90 minute focus groups including 3-5 participants from all years of the Doctor of Pharmacy curriculum spanning both campuses of the UNC Eshelman School of Pharmacy. Participants were split into two groups: those who self-declared as interested vs. not interested in a career or post-graduate training in geriatrics. Each discussion was audio recorded and subsequently transcribed, extracting key themes on which to base a survey tool through open thematic coding. Phase two will consist of electronically distributing the survey to a wider base with students at accredited schools of pharmacy in North Carolina as well as Monash University in Melbourne, Australia. Descriptive statistics were utilized to characterize responses, including counts and percentages for categorical variables and median with interquartile range for continuous variables.

RESULTS: Focus group discussion were completed with 8 students. Open thematic coding revealed an identified need, increased clinical acuity, a give and take profession, and past positive experiences as key themes influencing students to pursue a career or post-graduate training in geriatrics. The emotional impact of working with older adults, potential for career limitations, navigating age differences, and difficulty communicating with older adults were identified as factors influencing students away from older adult care. Factors identified as both influencing students to pursue or not to pursue a career or post-graduate training in geriatrics were heightened professional liability and inadequate geriatric exposure.

CONCLUSIONS: Identified need, increased clinical acuity, and past positive experiences were the most common factors influencing students towards a career or post-graduate training.

SELF ASSESSMENT QUESTION: Which of the following was not found to contribute to a pharmacy student's attitude towards a career in older adult care?

LINK TO PRESENTATION: [https://static.sched.com/hosted_files/2021southeasternresidency/05/SERC Presentation - Student Attitudes - Autumn Neff.mp4](https://static.sched.com/hosted_files/2021southeasternresidency/05/SERC_Presentation_-_Student_Attitudes_-_Autumn_Neff.mp4)

I **Comparison of Vancomycin Trough versus Area under the Curve Monitoring in Hospitalized Adult Patients**

Room H

Presenters: Kylie Black

TITLE: Comparison of Vancomycin Trough versus Area Under the Curve Monitoring in Hospitalized Adult Patients

AUTHORS: Kylie Black, NaaDede Badger-Plange, Kristin Horton, Natalie Morgan, Todd Parker, Reena Patel

OBJECTIVE: To determine the relationship between steady-state vancomycin troughs and estimated AUC using Bayesian software.

SELF ASSESSMENT QUESTION: Do steady-state vancomycin troughs of 10-20 mg/L correlate with the recommended target AUC of 400-600 mg*hour/L?

BACKGROUND: The 2020 vancomycin consensus guidelines identify area under the curve to minimum inhibitory concentration (AUC/MIC) as the most appropriate target for vancomycin. Many hospitals utilize steady-state trough concentrations as a surrogate marker for AUC, though this approach has fallen out of favor. The purpose of this study was to compare vancomycin steady-state troughs to estimated AUC values using Bayesian software.

METHODOLOGY: This was a retrospective chart review of adult patients admitted to Piedmont Atlanta Hospital from August-November 2020 who received intravenous vancomycin and had appropriately drawn steady-state troughs. The primary endpoint was to compare the average trough associated with a target AUC of 400-600 mg*hour/L to the standard trough target of 10-20 mg/L. Secondary endpoints included number of patients with a target AUC who had increases in vancomycin dose, average AUC associated with target trough concentrations, and comparison of average troughs and AUC in patients who developed acute kidney injury (AKI).

RESULTS: Sixty-seven patients were included and 83 troughs evaluated. The average trough associated with a target AUC of 400-600 mg*hour/L was significantly lower than the average trough within the standard target of 10-20 mg/L (11.3 vs. 14.6, p=0.00003). Nineteen of 33 patients (57.6%) with an estimated AUC of 400-600 mg*hour/L had potentially unnecessary increases in vancomycin dose. Troughs of 10-14.9 mg/L and 15-20 mg/L were associated with an average AUC of 539 mg*hour/L and 669 mg*hour/L, respectively. Average troughs and AUC were significantly higher in patients who developed AKI (trough 17.7 vs. 11.9, p=0.018; AUC 770 vs. 509, p=0.012).

CONCLUSIONS: Based on this study, analyzing vancomycin AUC with Bayesian software corresponded with significantly lower average trough concentrations compared to standard trough monitoring.

Video link: <https://vimeo.com/538476660>

I **Retrospective case series and proposed algorithm for utilization of procalcitonin in a nonacademic medical center**

Room I

Presenters: Caleb Hammons

TITLE: Retrospective case series and proposed algorithm for utilization of procalcitonin in a nonacademic medical center

AUTHORS: Caleb C. Hammons, Quentin J. Minson, Matthew D. Percy

OBJECTIVE: Describe ordering practices of PCT for LRTI and sepsis in the absence of criteria at a non-academic tertiary hospital

SELF ASSESSMENT QUESTION: What proportion of patients were ordered PCT for LRTI or sepsis despite having confounding factors?

BACKGROUND: Studies have demonstrated both strengths and weaknesses regarding procalcitonin's use in guiding antimicrobial therapies. Certain factors may influence efficacy; including setting, patient population, and additional antimicrobial stewardship strategies in place. While studies have developed and proposed algorithms for interpretation of procalcitonin values based on indication; studies are lacking in development and proposal of an algorithm for initial ordering of a procalcitonin level with a primary objective of optimizing utility. As procalcitonin's usefulness remains debated, we aim to retrospectively evaluate procalcitonin levels ordered in a single institution to determine which patient populations and clinical scenarios may benefit most and prove cost-effective.

METHODOLOGY: The study has been approved by the Institutional Review Board. Retrospective chart review will be performed at a non-academic medical center located in Nashville, TN. Patients greater than or equal to 18 years of age will be evaluated and included in analysis if they had a procalcitonin level ordered and resulted between January and March of 2020. Identification of patients will occur by running reports through a clinical decision support system. An algorithm will be both proposed and applied to patients included in analysis to determine the number of tests potentially saved and overall efficacy of procalcitonin based on new criteria.

RESULTS: In progress

CONCLUSIONS: In progress

PRESENTATION LINK: <https://www.youtube.com/watch?v=hg3XjT4V4L0>

Presenters: Kevin Ashley

TITLE: Automated dispensing cabinet optimization at a tertiary community hospital

AUTHORS: Kevin Ashley and Kristina M. Freeman

OBJECTIVE: Develop interventions necessary to optimize automated dispensing cabinets.

SELF ASSESSMENT QUESTION: What are the benefits and challenges of implementing an automated dispensing cabinet optimization procedure?

BACKGROUND: Automated dispensing cabinets (ADCs) are a major component in the distribution of medications throughout the hospital. In the studied hospital, the ADCs account for over 1 million dollars in inventory. It is important to routinely evaluate this inventory to impact outcomes on pharmacy workflow and budget. The purpose of this study is to determine the components necessary to initiate an ADC optimization procedure at a tertiary community hospital. The goal will be to implement this process, analyze the data, and develop a standardized operating procedure that may be utilized by pharmacy technicians to perform routinely in the future.

METHODOLOGY: Ten percent of the total most commonly utilized ADCs throughout the hospital were involved in this initial analysis. Baseline data was collected during the pre-optimization phase. This involved identifying the tools available to be used for optimization. These tools were used to determine the percent capacity, stockout percentages, and vend:fill ratios for each ADC involved in the analysis as well as identifying medications with the likelihood to expire. Medications that are commonly ordered from the central pharmacy with the potential to be added to the ADCs were also identified. The optimization phase involved utilizing the initial data collected in the pre-optimization phase and making adjustments to each ADC involved in the analysis. Goal stockout percentages and vend:fill ratios were determined and par levels were adjusted to meet these goals. The post-optimization phase involved re-collection of data from the pre-optimization phase, analyzing this data, and comparing results from each phase.

RESULTS: "In Progress"

CONCLUSIONS: "In Progress"

<https://www.youtube.com/watch?v=HnA7RXHt9M4>

Presenters: Perry Thompson

TITLE: Impact of collaborative pharmacist and dietitian interventions for patients with prediabetes

AUTHORS: Thompson P, Johnson A, Kirk C, Neighbors L, Ragan A, Willis B

OBJECTIVE: At the conclusion of the presentation, the audience will be able to identify the preventative measures needed to delay progression to T2DM

SELF ASSESSMENT QUESTION: What interventions may be helpful in delaying progression to T2DM according to the Diabetes Prevention Program results? Select all that apply.

BACKGROUND: Prediabetes is a major problem in the United States, with current Centers for Disease Control statistics estimating that over 1/3 of the adult population are affected. Interventions for patients with prediabetes have demonstrated decreased progression rates to type II diabetes mellitus. The purpose of this quality improvement project is to evaluate the impact of collaborative interventions between pharmacists and dietitians on surrogate markers of prediabetes progression.

METHODOLOGY: Patients were included if they had an HbA1c between 5.7% and 6.4% in the month preceding project initiation and had an estimated glomerular filtration rate \geq 45 mL/minute/1.73 m². Once identified, clinical pharmacy specialists (CPS) contacted patients for initial encounters to address lifestyle interventions, to assess candidacy for metformin initiation, and to gauge interest in referral to a dietitian for personalized medical nutrition therapy. If interested in referral, the patient was contacted by a registered dietitian. CPS continued to follow-up with the patients as clinically indicated for ongoing education and monitoring.

RESULTS: Out of the initial patients (n=92) contacted by CPS, 58.6% (n=54) were interested in receiving interventions. Of the 54 patients, 72.2% (n=39) agreed to a dietitian consult and 22.2% (n=12) were initiated on metformin therapy. At conclusion of data collection, twenty-five repeat HbA1c have shown an average increase of 0.11% from pre-intervention measures. Patients that received all possible interventions (n=6) saw an average decrease in HbA1c of 0.08%.

CONCLUSIONS: Collaborative efforts between pharmacists and dietitians may have a positive impact on an important surrogate marker of prediabetes progression (HbA1c). Pharmacist intervention alone produced variable effects on HbA1c.

LINK TO PRESENTATION (1080p): <https://www.youtube.com/watch?v=fgdLQzH3KrY>

EMAIL: Perry.Thompson1@va.gov

R An Evaluation of Non-Benzodiazepine Options for the Treatment of Alcohol Withdrawal Syndrome in Trauma Patients

Room B

Presenters: Morgan Cantley

TITLE: An Evaluation of Non-Benzodiazepine Options for the Treatment of Alcohol Withdrawal Syndrome in Trauma Patients

AUTHORS: Nunn A, Miller P, Martin R, Cantley M, Rebo K, McCullough MA, Warner R, Smith O, Shilling E

OBJECTIVE: Determine if using PAWSS and a benzodiazepine-sparing protocol can safely and effectively manage patients at risk for AWS in an ICU setting

SELF ASSESSMENT QUESTION: What was the difference of confirmed severe alcohol withdrawal events between groups?

BACKGROUND: Benzodiazepines have historically been associated with delirium in the intensive care unit (ICU). Recent literature suggests that by utilizing the Prediction of Alcohol Withdrawal Severity Scale (PAWSS), clinicians may be able to reserve benzodiazepines for severe cases of alcohol withdrawal syndrome (AWS) and manage patient symptoms of mild to moderate AWS with other modalities. The trauma ICU at our institution previously utilized a protocol recommending either lorazepam or chlordiazepoxide for the treatment of AWS based on the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scoring system. In 2019, a new protocol was implemented based on literature which encourages the preventative use of benzodiazepine alternatives based on PAWSS. The purpose of this study is to determine whether introduction of a benzodiazepine-sparing protocol is non-inferior to the previous alcohol withdrawal syndrome protocol by reviewing and quantifying the utilization of benzodiazepines before and after transitioning to the benzodiazepine-sparing protocol.

METHODOLOGY: In this retrospective, single-center cohort study, eligible patients were those who screened positive for alcohol use via a positive lab or provider screen for alcohol use or an ICD code for Alcohol Use Disorder and were admitted to a trauma service. We also included patients who had utilized one of the alcohol withdrawal syndrome protocols during their hospital stay. Patients were excluded if they were <18 years old, incarcerated, pregnant, or utilized benzodiazepines at home. The study has been divided into two arms based on the date of protocol implementation into Epic systems at our institution, and outcomes of interest include lorazepam milligram equivalents, hospital and ICU length of stay, ventilator days, and CIWA-Ar scores.

PRELIMINARY RESULTS: The preliminary results suggest a reduction in lorazepam milligram equivalents per patient per hospital stay with the implementation of the benzodiazepine-sparing protocol. These findings are in concert with the increased withdrawal rates noted in the benzodiazepine-utilizing protocol group. There were also significant reductions in the number of ventilator days in the benzodiazepine-sparing protocol group. The data collection is an ongoing process, and therefore, final conclusions are pending.

R Assessment of 23.4% Sodium Chloride Addition to Automated Dispensing Cabinets on Time to Administration

Room D

Presenters: Juliette Miller

Link to presentation: https://youtu.be/HMVVM_VVceM

TITLE: Assessment of 23.4% Sodium Chloride Addition to Automated Dispensing Cabinets on Time to Administration

AUTHORS: Juliette Miller, Tim Robinson, Jennifer Waller, Lindsey Sellers

OBJECTIVE: Identify whether addition of 23.4% sodium chloride to the trauma and neurology intensive care unit (ICU) automated dispensing cabinets (ADCs) decreases the time to administration of the first dose of 23.4% sodium chloride.

SELF ASSESSMENT QUESTION: Does the addition of 23.4% sodium chloride to automated dispensing cabinets in the trauma and neurology intensive care units decrease time to administration of the first dose?

BACKGROUND: Cerebral edema is a medical emergency that requires urgent treatment with hyperosmolar therapy. At one institution, 23.4% sodium chloride was added to the trauma and neurology ICU ADCs on February 1, 2020. The purpose of this study is to determine whether addition of 23.4% sodium chloride to ADCs decreases time to 23.4% sodium chloride administration.

METHODOLOGY: This single-center, retrospective review included patients ≥ 18 years receiving 23.4% sodium chloride in the trauma or neurology ICUs between January 2, 2019 and February 28, 2021. The pharmacy cohort included patients receiving 23.4% sodium chloride prior to February 1, 2020 and were compared to those who received it from the ADCs. Two-sample t-tests, chi-square tests, and descriptive statistics were used.

RESULTS: A total 31 patients were included. The mean time to administration in minutes was 30.6 for the ADC group and 36.8 for the pharmacy group ($P=0.4818$). Time to verification was similar (6.3 vs 6.7; $P=0.9152$). Of the 17 who had documented ICPs, only 2 in the ADC group did not meet the ICP goal <20 mmHg ($P=0.0735$). There were no documented extravasation events, and the incidence of hypotension and vasopressor use were higher with the pharmacy group ($P=0.2396$, $P=0.2550$).

CONCLUSIONS: This study did not meet power due to a drug shortage that depleted drug supply for about six months. There was a trend toward a lower time to ICP <20 mmHg with the ADC group. Other limitations include the retrospective design and possible inaccuracy with documentation of administration time. These results suggest there is no harm with addition to ADCs. Further research could confirm the benefits of adding 23.4% sodium chloride to ADCs on time to administration.

R Total versus ideal body weight-based sepsis fluid bolus strategies in patients with and without reduced ejection fraction congestive heart failure

Room C

Presenters: Kaitlyn Claybrook

TITLE: Total versus ideal body weight-based sepsis fluid bolus strategies in patients with and without reduced ejection fraction congestive heart failure

AUTHORS: Kaitlyn Claybrook, Pharm.D.; William Johnson Pharm.D., BCCCP; Alanna Rufe, Pharm.D.; Nancy Bailey, Pharm.D., BCPS; Terry Harris, Pharm.D., BCPS

OBJECTIVE: Identify strategies to fulfill Center for Medicare and Medicaid Services (CMS) sepsis bundle requirements while decreasing fluid bolus calculations.

SELF ASSESSMENT QUESTION: What is the current CMS mandated fluid bolus amount and in what time frame?

BACKGROUND: The primary objective of this study is to assess the differences in clinical outcomes between patients with and without heart failure who are weight-based, fluid-resuscitated in sepsis utilizing total body weight (TBW) or ideal body weight (IBW). The Center for Medicare and Medicaid Services (CMS) accepts both TBW and IBW based sepsis fluid resuscitation and literature is currently sparse regarding outcomes of this practice.

METHODOLOGY: This study was a retrospective chart review utilizing the electronic medical record. Patients with heart failure and sepsis that received a fluid bolus were placed into a study group of either TBW or IBW based fluid bolus. Patients without heart failure that received a sepsis fluid bolus were placed into study groups of either TBW or IBW based fluid bolus.

RESULTS: The primary outcome of length of stay was not found to be significant between cohorts. A secondary outcome that was found to be significant was ICU length of stay between the non-heart failure TBW and IBW bolus groups (4.4 vs 2.9 days, p-value 0.04136). Outcomes that trended significantly were ICU admission and 90-day readmission between non-heart failure TBW and IBW sepsis groups. A statistically significant difference existed in aggregate between non-heart failure and heart failure groups indicating increased morbidity and mortality in the setting of heart failure and sepsis regardless of fluid bolus amount received.

CONCLUSIONS: Using IBW to calculate fluid bolus amounts in patients with sepsis and without heart failure could decrease ICU length of stay. Additionally, future studies could be conducted specifically powered to assess ICU admission and 90-day hospital readmission.

I A Retrospective Analysis of COVID-19 Impact on Pediatric Immunization Adherence

Room I

Presenters: Kara Metowski

TITLE: A Retrospective Analysis of COVID-19 Impact on Pediatric Immunization Adherence

AUTHORS: Kara Metowski, Kristen Turner, Miles Lane, Erica Rubin

OBJECTIVE: Identify if COVID-19 had an impact on adherence to pediatric immunizations

SELF ASSESSMENT QUESTION: Has the COVID-19 pandemic impacted vaccine adherence?

BACKGROUND: The Center for Disease Control (CDC) reported decreased immunization ordering and administration for the pediatric population since the start of the COVID-19 pandemic. The objective of this project was to assess the impact of COVID-19 on adherence to pediatric immunizations.

METHODOLOGY: This retrospective cohort study evaluated immunization adherence of children that were attributed a single provider group within a community-based teaching hospital in two time periods; pre-COVID and post-COVID. The pre-COVID time period was defined as March 22nd, 2019 – September 22nd, 2019 and the post-COVID time cohort was March 22nd, 2020 – September 22nd, 2020. Adherence was assessed through retrospective chart review to the following childhood vaccines: hepatitis B, diphtheria, tetanus, acellular pertussis (DTaP), inactivated polio virus (IPV), varicella, measles, mumps, and rubella (MMR), pneumococcal conjugate (PCV), and haemophilus influenzae B (Hib). Adherence was defined as receiving an immunization within one month of its due date. Patients were identified in the electronic health record by age. Other demographic information abstracted from the electronic health record included gender, race, and payor.

RESULTS: There were no statistically significant differences in the baseline characteristics of gender or race between the pre-COVID and post-COVID cohorts. There were 245 children with immunization opportunities in the pre-COVID cohort and 253 children in the post-COVID cohort. The pre-COVID immunization adherence rate was 72% compared to the post-COVID cohort adherence rate of 51%, which was found to be a statistically significant difference.

CONCLUSIONS: The study revealed a lower vaccine adherence rate in the pre-COVID cohort compared to the post-COVID cohort. This could lead to erosion of herd immunity for previous vaccine preventable diseases in the pediatric population.

Presentation Link: <https://www.youtube.com/watch?v=Gghs3YnHhc0>

Presenters: Erin Creasy

TITLE: Comparison of multiple dose long-acting lipoglycopeptides in a hospital-owned infusion clinic

AUTHORS: Erin Creasy, Samantha Rustamov, Madeline Belk, Macy Wigginton, Jonathan Edwards

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the clinical, safety, and economic outcomes of oritavancin versus dalbavancin therapy in a hospital-owned infusion clinic.

SELF ASSESSMENT QUESTION: What considerations should be made when evaluating novel outpatient antimicrobial therapies in a hospital-owned infusion clinic?

BACKGROUND: The purpose of this study is to determine the optimal long-acting lipoglycopeptide based on a review of clinical, safety, and economic findings when multiple dose regimens are prescribed.

METHODOLOGY: A literature review was conducted to identify any related clinical, safety, or economic evaluations of multiple dose oritavancin or dalbavancin regimens in the outpatient setting. A retrospective chart review and medication use evaluation was conducted to collect clinical, safety, and economic data for patients receiving multiple doses of either oritavancin or dalbavancin from September 2015 to June 2020. Data was evaluated globally and at a patient specific level in order to determine the most optimal agent for the hospital-owned infusion clinic. The findings and conclusions were presented as a recommended action item to various committees within the health system for consideration.

RESULTS: Of the 102 patients included, 73 (71.6%) patients received oritavancin and 29 (28.4%) patients received dalbavancin. The most common indications in both groups were osteomyelitis, cellulitis and prosthetic joint infections. All-cause 30-day readmission rates were numerically less in the dalbanvain group versus the oritavancin group.

Adverse drug reactions occurred at a rate of 2.8% in the oritavancin group compared to 0.0% in the dalbavancin group. The economic margin evaluation in the non-340 B setting favored oritavancin, whereas dalbavancin is favored in the 340 B setting based on the margin evaluation and patient assistance program benefits.

CONCLUSIONS: In progress

Presenters: Andrea Ampuero

TITLE: Evaluation of Antimicrobial Stewardship Practices at the Salisbury Veterans Affairs Health Care System (SVAHCS) Community Living Center (CLC)

AUTHORS: Andrea Ampuero, Brittany Melville, Bailey Guest

OBJECTIVE: Evaluate the effectiveness of pharmacist-led antimicrobial stewardship interventions at the SVAHCS CLC

SELF ASSESSMENT QUESTION: What antimicrobial stewardship interventions do pharmacists perform in the SVAHCS CLC?

BACKGROUND: Antimicrobial stewardship programs (ASP) have shown improvement in patient outcomes, reduction of antimicrobial adverse events and a decrease in antimicrobial resistance in hospitals. There is limited evidence available quantifying the impact of pharmacist-led ASP interventions in long term care facilities. The purpose of this project is to evaluate the effectiveness of antimicrobial stewardship interventions completed at the SVAHCS CLC.

METHODOLOGY: This is a retrospective quality improvement project. Eligible subjects included Veterans residing in the SVAHCS CLC to which an ASP intervention was proposed from May 1, 2018 to January 31, 2021. The primary objective is to determine the effectiveness of ASP interventions in the CLC. Secondary objectives include to assess safety of select implemented CLC ASP interventions and determine cost savings of the implemented ASP interventions.

RESULTS: A total of 379 interventions were included in this project. Of these interventions, 370 were accepted (98%), 5 were accepted with modification (1%) and 4 were rejected (1%). The indication for which the most interventions were performed was osteomyelitis. Vancomycin was the most common antimicrobial for which interventions were performed. Of the 131 interventions assessed for safety, 1 Veteran experienced an adverse drug event (ADE) within 30 days of the intervention including nephrotoxicity and Clostridioides difficile infection. There was a total cost savings of \$102,059.

CONCLUSIONS: This study demonstrates that pharmacist-led ASP interventions proposed in the SVAHCS CLC were effective with a high rate of acceptance. These interventions resulted in a low rate of ADEs and cost savings for the facility.

Link to Recording: Evaluation of Antimicrobial Stewardship Practices at the SVAHCS CLC - YouTube

Presenters: Reem Ghandour

TITLE: Impact of Pharmacist Intervention on the Appropriate Prescribing of Fentanyl Patches

AUTHORS: Reem M Ghandour, Ambra Hannah, Kimm Freeman

OBJECTIVE: Assess the impact of pharmacist intervention on the appropriateness of fentanyl patch prescribing based on patient-specific factors

SELF ASSESSMENT QUESTION: Does pharmacist intervention positively impact appropriate fentanyl patch prescribing?

BACKGROUND: The purpose of this study was twofold. First, we evaluated the impact of pharmacist interventions on the appropriate prescribing of fentanyl patches within the Wellstar Health System. Second, we assessed the effectiveness of a policy revision requiring that pharmacists verify and document the appropriateness of fentanyl patch prescribing during order verification. This is in recognition of the severe adverse-event profile of fentanyl patches as recognized by the Institute for Safe Medication Practices (ISMP).

METHODOLOGY: Data was collected through a multicenter retrospective chart review of adult patients initiated on fentanyl patches at Wellstar hospitals from January 1, 2020, to January 31, 2021. Patients were included if they (1) received an initial fentanyl patch for non-cancer and sickle cell pain, (2) were not receiving hospice or palliative care services, and (3) were admitted to inpatient areas or the emergency department. The primary endpoint was the number of appropriate fentanyl patch orders that had pharmacist intervention. Secondary endpoints included (a) the percentage of pharmacist interventions that were compliant with the documentation requirements and (b) the percentage of appropriate fentanyl patch orders

RESULTS: Pre-policy revision, pharmacists intervened in 12 out of 72 fentanyl patch orders. When pharmacists intervened, 58% of orders (i.e., 7/12) were appropriately prescribed ($p=0.10$). Post-policy revision, pharmacists intervened in 5 out of 16 fentanyl patch orders and none of the five orders were appropriately prescribed ($p=0.09$). However, there was an increase in pharmacist documentation post-policy revision – bringing the compliance rate to 31.25% (i.e., 5/16) vs. 17% (i.e., 12/72) pre-revision.

CONCLUSIONS: The study's findings remain inconclusive due to lack of statistical significance. This seems to be primarily driven by the insufficient sample size across both arms. However, these initial findings suggest that pharmacist interventions are likely to have a positive impact on appropriate fentanyl patch prescribing.

Presenters: Akhilesh Sivakumar

TITLE: Impact of gabapentin and pregabalin use during high-dose melphalan conditioning in patients undergoing an autologous hematopoietic cell transplant

AUTHORS: Akhilesh Sivakumar, Evan Bryson, Kevin Hall, Kathryn Maples, R. Donald Harvey, Subir Goyal

OBJECTIVE: Evaluate the safety of concomitant pregabalin or gabapentin use in patients undergoing ASCT with high-dose melphalan conditioning.

SELF ASSESSMENT QUESTION: Do ASCT patients who receive gabapentin or pregabalin within 24 hours of high-dose melphalan experience increased toxicity from the conditioning regimen?

BACKGROUND: Melphalan is an alkylating agent used prior to autologous (ASCT) stem cell transplantation. It is transported in the body by the L-type amino acid transporter-1 (LAT-1) and LAT-2, which may be involved in both tissue penetration and excretion of the agent. Gabapentin and pregabalin are common concomitant medications in patients undergoing ASCT. These agents also utilize LAT transporters, raising concern for competitive inhibition of melphalan transport. The purpose of this study was to determine whether concurrent use of gabapentin or pregabalin in patients receiving high-dose melphalan (≥ 140 mg/m²) affected safety of the conditioning regimen.

METHODOLOGY: This was a single-center, retrospective chart review including patients ≥ 18 years of age who received melphalan prior to ASCT at Winship Cancer Institute of Emory University from 8/1/2010 to 4/1/2020. Patients were excluded if they received concomitant levodopa, methylodopa, or baclofen within 24 hours of melphalan. After inclusion of patients who received gabapentin or pregabalin plus melphalan, patient matching based on age, sex, and melphalan dose was utilized to generate an equally matched cohort of patients who received melphalan alone. The primary outcome of this study was hospital length of stay.

RESULTS: There were 176 patients each in the melphalan plus gabapentin or pregabalin and melphalan alone groups. In both groups, median hospital LOS was 16 days ($p=0.981$), median time to neutrophil engraftment was 14 days ($p=0.829$), and median time to platelet engraftment was 16 days ($p=0.289$). There were no statistically significant differences in supportive care needs between groups.

CONCLUSIONS: Co-administration of gabapentin or pregabalin with melphalan appears safe without any compromise in safety of the conditioning regimen.

Presenters: Casey Wells

TITLE: Development of a Medication Access Program in a Family Medicine Practice

AUTHORS: Casey Wells, Laura Bailey, Rebecca Grandy

OBJECTIVE: To describe the development of a medication access program at Mountain Area Health Education Center (MAHEC) Family Medicine

SELF ASSESSMENT QUESTION: What is an effective way to complete medication access consults in Family Medicine Clinics?

BACKGROUND: MAHEC focuses on primary care in rural communities. Between one-third and one-half of the pharmacy consults in our electronic health record are related to medication cost. Due to a growing need for medication assistance, the current PGY1 resident collaborated with family medicine staff to develop a medication access program.

METHODOLOGY: Eighteen half-days of resident clinic were dedicated to development of a medication access program over the first semester. Initially, state resources and collaborative regional partners were identified. In conjunction with clinical leadership within family medicine, we developed a workflow for medication assistance triaging based on acuity and duration of medication need. Next, patients were contacted to assess program eligibility. We developed a standardized process for referral, enrollment, documentation and follow-up. Students were added to the workflow for layered learning opportunities which included navigating the barriers associated with underserved patients.

RESULTS: Seven primary types of consults were completed: manufacturer assistance program applications (N=31), state-level assistance applications, community-level referrals, Medicare low income subsidy applications, coupon or discount program identification, de-prescribing or formulary switch, and care management referrals. The value of medications obtained was estimated at \$186,031. Systems created by the pharmacy resident led to the funding of a pharmacy technician position to coordinate the medication access program.

CONCLUSIONS: Medication access is an important component of primary care services. The development of a medication access program resulted in over 30 patients receiving help on with the cost of their medications in a 3-month period and justified the creation of a full time pharmacy technician position to coordinate the program.

Presenters: Kruti Patel

TITLE: THE IMPACT OF PHARMACIST INTERVENTION ON SHINGRIX VACCINATION RATES AT AN INDEPENDENT COMMUNITY PHARMACY

AUTHORS: Kruti Patel, Spencer Durham

OBJECTIVE: State if pharmacists can improve the rate of completed Shingrix vaccine series.

SELF ASSESSMENT QUESTION: What can community pharmacists do to increase vaccination rates?

BACKGROUND: Vaccination is a cost-effective method of avoiding preventable diseases and associated complications. Despite the availability of highly efficacious and tolerable vaccines, low immunization rates have caused the burden of vaccine-preventable diseases to persist. Pharmacist education of patients has shown to positively impact vaccination rates via face-to-face interactions and promotional materials. The purpose of this quality improvement project is to evaluate the impact of pharmacist education via telephone interaction on rates of Shingrix vaccine series completion.

METHODOLOGY: Patients were identified using reports generated by the QS1 dispensing software for 5 stores of an independent pharmacy corporation. Patients were included if they had received the first dose of the Shingrix vaccine within one year from the date of report. Those eligible for the second dose of Shingrix who had not received it elsewhere were counseled on the health benefits of completing the series and encouraged to return for dose two. Outcomes included number of patients that completed the series at pharmacy prior to contact, completed the series elsewhere, were unable to be reached entirely, received voicemails, were not due for a second dose at the time of report review, were successfully contacted and educated, and that returned to pharmacy after contact to receive the second dose.

RESULTS: 256 patient profiles were reviewed for three of five stores. The three stores had four, five, and four patients that were contacted and educated. The rate of return for dose two was 100%, 100%, and 50% for the three stores, respectively.

CONCLUSIONS: Pharmacist education via telephone interaction can improve the rate of completed Shingrix vaccine series at community pharmacies.

Presenters: Grant Teague

TITLE: Evaluation of implementation of intravenous push antibiotics in the emergency department

AUTHORS: Grant Teague, Jonathon Pouliot

OBJECTIVE: Evaluate operational and clinical outcomes after implementation of intravenous push dosing of antibiotics in the ED

SELF ASSESSMENT QUESTION: What class of antibiotics has shown to be safe and effective when administered via IV push?

BACKGROUND: Many beta-lactams have shown to be safe and effective when administered via intravenous (IV) push. Administration via IV push has shown to have operational and economic benefits, including potentially improving compliance to the CMS 3-hour sepsis bundle. Reducing exposure to COVID-19 and reducing the use of personal protective equipment (PPE) is another timely advantage of IV push administration of antibiotics.

METHODOLOGY: This study is a single-center, retrospective cohort with a historical comparison. Reports from an electronic health record will be used to identify patients > 18 years old who were administered one of the study IV antibiotics, including piperacillin/tazobactam 4.5 grams, cefazolin 1-2 grams, cefoxitin 2 grams, ceftriaxone 1 gram, cefepime 1 gram, meropenem 1 gram, and aztreonam 1 gram, while in the adult ED at a community hospital. This community hospital implemented the IV push antibiotics in the ED initiative in September of 2020, so the control group is those patients who presented prior to implementation, September 2019 to December 2019. The experimental group is those patients who presented after implementation, September 2020 to December 2020.

RESULTS: There was a slight increase in time from diagnosis to antibiotic administration in the post-implementation group. Secondary endpoints also showed an increase ED length of stay and total antibiotic administration time in the post-implementation group. Overall compliance to the CMS sepsis bundle improved by about 14% in the post-implementation group and antibiotic administration improved from 96.6% to 100% compliance. IV push antibiotics resulted in annual cost savings of \$20,645 over traditional IV infusion. 30% of nurses felt that the new protocol reduced the time it took them to administer the antibiotic while another 30% did not perceive any benefit to switching to IV push antibiotics.

CONCLUSIONS: The implementation of IV push antibiotics in the ED results in a significant cost reduction and ease in the administration process as compared to traditional IV infusion. Due to the limitations of the research, additional analysis would be beneficial when process changes due to COVID-19 have returned to normal and the IV push antibiotic protocol has been finalized.

Presenters: Mary Stewart Leatherwood

TITLE: Levetiracetam use after spontaneous intracerebral hemorrhage

AUTHORS: Mary Stewart Leatherwood, Leslie A. Hamilton, A. Shaun Rowe

OBJECTIVE: Describe the significance of the present study in the context of previous studies assessing seizure prophylaxis in spontaneous ICH.

SELF ASSESSMENT QUESTION: Does current evidence warrant seizure prophylaxis in patients with spontaneous ICH?

BACKGROUND: To assess the incidence of seizures in patients with intracerebral hemorrhage (ICH) who received prophylactic levetiracetam.

METHODOLOGY: This retrospective cohort study included patients treated for ICH. Patients were excluded if they were < 18 years of age, had a documented history of a seizure disorder, or had an antiepileptic drug on their home medication list. Patients were dichotomized by their exposure to levetiracetam as seizure prophylaxis. The primary outcome was occurrence of seizure during hospitalization for ICH. Secondary outcomes include occurrence of adverse events, ICU length of stay (LOS), and hospital LOS.

RESULTS: No difference was found in incidence of seizures between groups [4.8% (n=3) LEV vs. 1.4% (n=1) No LEV, p=0.32]. Overall incidence of seizures was low at 1.4% across the entire cohort. No difference was seen in ICU length of stay, hospital length of stay, or occurrence of adverse events.

CONCLUSIONS: Although levetiracetam use as seizure prophylaxis in ICH is likely not harmful, it does not decrease incidence of seizures and is likely not necessary.

Presenters: Courtney Reddig

TITLE: Preoperative Oral Methadone versus Intravenous Methadone Use in Cardiac Surgery

AUTHORS: Courtney Reddig, Lindsay Reulbach, Caroline McKillop, Alex Ewing, Lyndsay Gormley

OBJECTIVE: Identify the role of perioperative oral methadone in cardiac surgery

SELF ASSESSMENT QUESTION: How does the pharmacokinetic profile of methadone differ from other opioids?

BACKGROUND: Traditionally, shorter-acting opioids are administered perioperatively and as repeat boluses after cardiac surgery, which can lead to fluctuating opioid concentrations. A single dose of perioperative intravenous methadone can reduce postoperative analgesic requirements. Oral methadone has a similar pharmacokinetic profile, however limited data exists evaluating its use for postoperative pain management. The purpose of this study was to determine if perioperative oral methadone is noninferior to intravenous methadone at reducing postoperative morphine milligram equivalent (MME) requirements following cardiac surgery.

METHODOLOGY: This study was a single-center, retrospective, pre-and-post analysis evaluating patients undergoing cardiac procedures requiring cardiopulmonary bypass. Patients who received either intravenous methadone between November 2019 and May 2020 or oral methadone between August and December 2020 were included in the analysis. The primary outcome was 24-hour postoperative MME requirements. Secondary outcomes included postoperative pain scores, MME requirements at 48 and 72 hours postoperative, and time until extubation.

RESULTS: A total of 20 patients were included in the intravenous methadone group and 48 in the oral methadone group. Median 24-hour postoperative MME use was 26.25 in the intravenous methadone group and 28.75 in the oral methadone group (p=0.575). There were no significant differences between any secondary outcomes.

CONCLUSIONS: There was no significant difference observed in postoperative MME requirements or pain scores between oral and intravenous methadone. Oral methadone remains a suitable alternative to intravenous methadone to help mitigate opioid use following cardiac surgery.

Presenters: Sarah Sheahon

TITLE: Antimicrobial Stewardship in Medical Oncology

AUTHORS: Sarah Sheahon, Megan Freeman, Sarah Murphy, Victoria Woolley

OBJECTIVE: To assess appropriate empiric antibiotic use retrospectively and intervene prospectively with real time feedback to provide appropriate clinical guideline recommendations.

SELF ASSESSMENT QUESTION: What processes can we put into effect to encourage appropriate empiric antimicrobial agent selection and to de-escalate when clinically necessary? How can we encourage appropriate duration of therapy?

BACKGROUND: Antimicrobial resistance is of particular concern to cancer patients because the ability to prevent and cure infection is a cornerstone of cancer therapy. Although pharmacy currently monitors the use of antimicrobials, there are still limited processes in place to prevent antimicrobial resistance with inappropriate antibiotics usage. The purpose of this evaluation is to assess appropriate empiric antibiotic use retrospectively and intervene prospectively with real time feedback to provide appropriate clinical guideline recommendations.

METHODOLOGY: A retrospective chart review was performed from March 2019—March 2020 on oncology patients prescribed antibiotics for pneumonia, febrile neutropenia and UTI. Data was analyzed for appropriate antibiotic selections and will be compared to post implementation data.

RESULTS: 105 patients were reviewed retrospectively. Overall, suboptimal empiric antibiotics were selected in 42% of diagnoses. Of those 105 patients, 49% had suboptimal durations of therapy. Antibiotic selection was not optimized in 54% (19) of patients diagnosed with pneumonia, 47% (15) of patients diagnosed with UTI, and 26% (9) of patients diagnosed with febrile neutropenia. Duration of therapy was not optimized in 66% (21) of patients with pneumonia, 41% (14) of patients with UTI, and 43% (15) of patients with febrile neutropenia.

CONCLUSIONS: Pre-implementation data suggests the need for real-time interventional feedback and prospective data collection. Overall, suboptimal empiric antibiotics were selected in 42% of diagnoses. Of those 105 patients, 49% had suboptimal durations of therapy.

Presenters: Alexandria Martin

TITLE: Outcomes Related to Coronavirus 19 Infection in a Community Hospital

AUTHORS: Alexandria Martin and Mary Perez

OBJECTIVE: Identify the risk factors for having worse outcomes with COVID-19

SELF ASSESSMENT QUESTION: Which of the following are risk factors for having more negative outcomes if infected with COVID-19?

BACKGROUND: Evaluate outcomes of patients with confirmed diagnosis of COVID-19 in a community hospital.

METHODOLOGY: Retrospective chart review of inpatients currently admitted to Ascension St. Vincent's Birmingham from April through September 2020 with COVID-19 infection. Primary outcome is the change in patient's care at discharge compared to admission. Secondary outcomes include hospital and ICU length of stay, oxygen requirement, ventilator days, tracheostomy placement, and ECMO initiation along with ARDS or thrombus diagnosis. Other outcomes include an analysis of the primary outcome based on comorbidities, ethnicity, specific treatments, and oxygen requirements.

RESULTS: 405 patients were evaluated in this study. 61.8% of patients had no change in level of care at discharge while 20.3% had an escalation of care and 17.9% expired. Mortality was disproportionately higher in the Hispanic population as well as those presenting from a LTAC. Increased oxygen requirements were associated with worse outcomes. Steroids were the therapy associated with greatest benefit at discharge with 55% no change in care, 23.9% escalation of care and 21.1% expired. Average length of stay in ICU and hospital was 15.3 and 12.5 days respectively.

CONCLUSIONS: In our patients, the majority survived with no changes in level of care at discharge. There was a higher mortality rate noted in the Hispanic population as well as patients who presented from a LTAC. Higher level of oxygen requirements was associated with an increased need for escalation of care at discharge, while steroids were associated with better outcomes.

<https://youtu.be/57i7M0cdtvl>

Presenters: Y. Vivian Tsai

TITLE: Predictive Factors for Treatment Success in Patients with Nontuberculous Mycobacterial Infections

AUTHORS: Y. Vivian Tsai, P. Brandon Bookstaver

OBJECTIVE: List potential factors that can influence treatment outcome in patients with NTM infections.

SELF ASSESSMENT QUESTION: What are the factors associated with successful treatment outcomes in patients with NTM infections?

BACKGROUND: Nontuberculous Mycobacterial (NTM) infections are associated with significant morbidity and mortality and often require protracted courses of antibiotics. The purpose of this study is to identify predictors of favorable treatment outcomes in patients with NTM infections.

METHODOLOGY: This was a retrospective, single-center, observational cohort study at Prisma Health Midlands that included patients at least 18 years of age with a positive culture for an NTM species from January 1, 2010 to June 30, 2020. Patients were excluded if they had a concurrent *M. tuberculosis* infection or a monomicrobial culture positive for *M. gordonae*. The primary endpoint of favorable treatment outcomes is defined as successful completion of prescriber-intended treatment course without death, rehospitalization or reinfection at 1 year. Multivariate logistic regression analysis will be used to assess factors associated with a favorable treatment outcomes. Frequency of and reasons for antibiotic regimen changes will be described.

RESULTS: A total of 290 patients were screened for study eligibility. Of these, 78 patients were included for analysis of study endpoints. Forty-seven patients (60.3%) had a favorable treatment outcome. The cohort consisted mainly of non-hispanic caucasian individuals with pulmonary NTM infections. Baseline demographics were similar between two groups, except the unfavorable group consisted of higher proportion of individuals who are underweight, uninsured, and with history of asthma and prior TB treatment. *MAC* and *M. abscessus* were the most common organisms observed. Univariate analysis showed that antibiotic changes, uninsured, underweight, and history of asthma were factors that could influence treatment outcome. However, multivariate regression analysis demonstrated that individuals who had private insurance and had antibiotic changes not due to escalation or de-escalation of therapy were 6 times and 8 times more likely to have a favorable outcomes than those who didn't, respectively. Sixty-five percent of the cohort had a antibiotic change. The most common reasons include: adverse drug reaction (42.3%), susceptibility (16.7%), and treatment optimization (9%). Susceptibility data revealed that first-line agents remained highly susceptible to *MAC*, but suboptimal against *M. abscessus*.

CONCLUSIONS: The management of NTM infection consisted of complex drug regimen, involving multiple antibiotic changes which increased risk for unwanted side effects. This study demonstrated that private insurance and antibiotic changes not due to therapy escalation or de-escalation are factors that could favor a successful treatment outcome in patients with NTM infections. Collaboration between ID pharmacists and physicians in managing antibiotic regimen for such complex patient population is warranted in order to reduce the risk for antibiotic resistance and adverse drug reactions while increasing patient adherence and improving overall prognosis

<https://www.youtube.com/watch?v=GXOn5PmyPeA&feature=youtu.be>

L Inpatient length of stay associated with the use of varied glucocorticoid doses for the treatment of chronic obstructive pulmonary disease exacerbations

Presenters: Holly Loyd

TITLE: Inpatient length of stay associated with the use of varied glucocorticoid doses for the treatment of chronic obstructive pulmonary disease exacerbations

AUTHORS: Holly Loyd, Pharm.D.; Leborah Cole Lee, Pharm.D., BCPS; Catelin Fulghum, Pharm.D., BCPS; Nancy Bailey, B.S., Pharm.D., BCPS

OBJECTIVE: Assess the outcomes with higher glucocorticoid doses in patients admitted for COPD exacerbation.

SELF ASSESSMENT QUESTION: What is the appropriate glucocorticoid dose for treating mild to moderate COPD exacerbations?

BACKGROUND: Systemic glucocorticoids are a common cause for hyperglycemia and associated complications. Per the 2020 Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines, the recommended therapy for chronic obstructive pulmonary disease (COPD) exacerbations is prednisone 40mg daily for 5 days. However, glucocorticoid prescribing habits vary amongst providers. This study aims to identify a correlation between varied glucocorticoid doses and length of stay for the inpatient treatment of COPD exacerbations.

METHODOLOGY: An IRB-approved, retrospective cohort chart review was conducted utilizing electronic health records. Patients were identified if admitted for COPD exacerbation in 2019 requiring glucocorticoid treatment during hospitalization. Patients were excluded if they did not remain in the hospital for at least 24 hours and/or had a non-COPD pulmonary disorder such as asthma or pneumonia, patients in an immunocompromised state, had any oral glucocorticoid within one week prior to admission, surgery/NPO, had an insulin pump, pregnant/lactating, and/or in acute respiratory failure requiring ventilator support on admission. An average total dose per day and per stay of glucocorticoid was calculated for each patient using methylprednisolone equivalence. Descriptive statistics was utilized for patient demographic data. Outcomes were analyzed using data-appropriate correlation tests.

RESULTS: A total of 180 patients were included in this study. The average total dose of glucocorticoid received per stay was 486mg and 114mg per day. Ninety-five percent of patients received higher than the guideline-recommended dose of 40mg daily for 5 days. There was a statistically significant weak negative correlation between average daily dose and length of stay ($r = -0.2189$; $p < 0.05$). Statistically significant correlations between readmissions at 30 days and 90 days were not found.

CONCLUSIONS: Glucocorticoid doses above guideline recommendations did not meaningfully correlate with decreased length of stay or decreased rate of readmission at 30- or 90-days.

Link: <https://vimeo.com/538885034>

○ **Survival and Safety Outcomes of Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (R-CHOP) Regimens in Elderly Patients with Diffuse Large B-Cell Lymphoma (DLBCL)** Room A

Presenters: S. Jack Dierckes

TITLE: Survival and Safety Outcomes of Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (R-CHOP) Regimens in Elderly Patients with Diffuse Large B-Cell Lymphoma (DLBCL)

AUTHORS: Stephen J Dierckes, Brandi Anders, Rakhee Vaidya, LeAnne Kennedy

OBJECTIVE: To evaluate overall survival (OS), treatment response, and tolerability of R-CHOP based regimens in patients 70 years of age and older and determine the patient and disease characteristics that drove choices of regimen.

SELF ASSESSMENT QUESTION: What patient and disease characteristics prompt providers to utilize full-dose versus attenuated R-CHOP regimens in the treatment of DLBCL, and which regimen is most appropriate in elderly patients 70 years of age and older?

BACKGROUND: Non-Hodgkin Lymphoma is one of the most prevalent cancer types in the United States with DLBCL being the most common subtype. The R-CHOP treatment regimen has been shown to be beneficial across a variety of patients including young patients with good overall prognosis as well as elderly patients. R-Mini-CHOP is a dose-attenuated regimen that has been primarily studied in those >80 years of age, with lower rates of long-term survival but better tolerability. However, as life expectancy has increased, so has the average age of diagnosis, with patients most frequently diagnosed with DLBCL between 60 and 74 years of age. Optimal treatment for those > 70 years of age is unclear and is a balance of patient tolerability and goals of care.

METHODOLOGY: This observational, single-center, retrospective chart review included patients > 70 years of age diagnosed with DLBCL who received an R-CHOP based regimen as first line therapy between January 1, 2013 and July 1, 2020. Patients were analyzed in a group cohort and individual cohorts based on full-dose or dose-attenuated R-CHOP. The primary outcome was OS in months across all patients, with secondary endpoints across both cohorts including OS at 2 years, overall response rate, progression free survival, and progression to second line therapy. Secondary and safety outcomes were collected for all patients. An analysis was conducted to delineate the patient and disease characteristics that drove treatment choices.

RESULTS: In progress.

CONCLUSIONS: In progress.

Link: https://www.youtube.com/watch?v=dQR0ZSD_kqE

B Impact of Curbside Warfarin Monitoring on Appointment Attendance and Patient Satisfaction at an Urban Outpatient Clinic during the COVID-19 Pandemic

Room J

Presenters: Kathleen Macalalag

TITLE: Impact of Curbside Warfarin Monitoring on Appointment Attendance and Patient Satisfaction at an Urban Outpatient Clinic during the COVID-19 Pandemic

AUTHORS: Kathleen Macalalag, Carrington Royals, Jessica King, Autumn Mittleider, Erika McClain

OBJECTIVE: Describe the impact of curbside INR visits on appointment attendance and patient satisfaction.

SELF ASSESSMENT QUESTION: What are some benefits of curbside INR services offered during the COVID-19 pandemic?

BACKGROUND: The current COVID-19 pandemic can instill fear in patients, causing them to cancel warfarin monitoring appointments to reduce their risk of exposure to the virus. Curbside warfarin visits minimize patient contact with others and ensure close monitoring of INRs. The purpose of our study is to assess patient satisfaction with curbside INR testing and attendance at warfarin monitoring appointments prior to and following the implementation of this service.

METHODOLOGY: This single-centered, historical control study included patients of a family medicine clinic that completed at least one pharmacist-managed curbside INR visit between April 1, 2020 to September 30, 2020. The primary endpoint compared the percent of warfarin monitoring appointments canceled prior to and following curbside INR services. Secondary endpoints included percent of patients with comorbidities that increased risk of infection with COVID-19 who canceled appointments, patient satisfaction, and patient perception of length of curbside visits.

RESULTS: Prior to implementing a curbside INR service, 9.1% of our forty-two patients canceled warfarin monitoring visits compared to 8.9% following implementation ($p=1.00$). Of these canceled appointments, 19.4%, 77.4%, and 3.2% of patients had 3, 1 or 2, or no comorbidities that increased the risk of COVID-19 infection, respectively. Forty-two surveys were completed: 95.2% of respondents were satisfied with our curbside INR service, 2.4% had neutral satisfaction, and 2.4% were dissatisfied. Overall, respondents felt that curbside INR visits were shorter than in-clinic INR visits.CONCLUSIONS: Curbside INR visits maintained attendance at the pharmacist-led INR monitoring service despite the COVID-19 pandemic. The majority of patients were satisfied with our service and 88.1% of respondents indicated that they would like curbside INR visits to continue after COVID-19 social distancing requirements become less strict.
<https://vimeo.com/538910434>**B PrEP Adherence and Discontinuation at a Pharmacy-Supported PrEP Program in Atlanta, GA**

Room K

Presenters: Hiba Yacout

TITLE: PrEP Adherence and Discontinuation at a Pharmacy-Supported PrEP Program

AUTHORS: Hiba Yacout; Bradley L. Smith; Shelbie Foster; Meredith Lora; Larisa V. Niles-Carnes; Suprateek Kundu; Ziduo Zheng; Valeria D. Cantos

OBJECTIVE: Determine PrEP adherence in a newly developed program

SELF ASSESSMENT QUESTION: Did insurance status effect adherence or discontinuation rates in this study?

BACKGROUND: Pre-exposure prophylaxis (PrEP) effectiveness in decreasing HIV transmission is directly correlated with medication adherence. Grady Health System (GHS) developed a pharmacy-supported PrEP program aimed at optimizing PrEP uptake. The purpose of this study is to determine PrEP medication adherence and associated factors of patients enrolled during the first 18 months of the program's implementation.

METHODOLOGY: A single-center, retrospective chart review was conducted on patients enrolled in the GHS PrEP program between June 1, 2018 to February 29, 2020 who received more than one PrEP prescription. Adherence was estimated using the medication possession ratio (MPR). The primary outcome was mean adherence to PrEP.

Secondary outcomes include rate of high percent adherence ($MPR > 80\%$), median time of engagement in care, PrEP discontinuation rates, rates of PrEP re-engagement after discontinuation, individual factors associated with PrEP discontinuation and low adherence, sexually transmitted infection (STI) rates and HIV seroconversion.RESULTS: This study included 154 patients who were primarily young, black (70.8%), cisgender men (62.3%) and uninsured (59.1%). 51.9% identified as a men who has sex with men. Mean PrEP adherence was 89.2% and 77.3% of patients demonstrated a high rate of adherence. No individual or social factors were associated with low adherence. 53.8% were active in the program at the end of the follow up period. Young age was associated with PrEP discontinuation ($p<0.0061$).

CONCLUSIONS: This pharmacy-supported PrEP program demonstrated high levels of PrEP adherence. Future areas of improvement include optimizing adherence and engagement in care in young populations.

LINK: <https://drive.google.com/file/d/1fF3DiSXAjGdMf60yR6fv3mjLB7IWdaSI/view?usp=sharing>

C Comparison of clopidogrel versus ticagrelor when used as part of triple antithrombotic therapy with aspirin and apixaban

Room D

Presenters: Mitchell Hutson

TITLE: Comparison of clopidogrel versus ticagrelor when used as part of triple antithrombotic therapy with aspirin and apixaban

AUTHORS: Mitchell Hutson, Travis Fleming, Sara Catherine Pearson, Kimberly Keller

OBJECTIVE: At the conclusion of the presentation, the audience should be able to compare outcomes between two common triple antithrombotic therapy regimens.

SELF ASSESSMENT QUESTION: Is there a difference in bleeding or thrombotic events between a clopidogrel-based and ticagrelor-based triple therapy regimen?

BACKGROUND: Triple antithrombotic therapy is necessary for many patients experiencing acute coronary syndromes who have indications for anticoagulation. Although triple therapy is generally temporary, it is crucial to balance the risk of bleeding and thrombosis. Studies have demonstrated ticagrelor to be superior to clopidogrel in preventing thrombosis, however, a recent meta-analysis demonstrated that ticagrelor increases bleeding risk. Additionally, the emergence of apixaban as the most prescribed oral anticoagulant raises even more safety and efficacy questions when it is used as part of a triple antithrombotic regimen.

METHODOLOGY: This study is a single center, IRB approved, retrospective cohort investigating safety and efficacy outcomes between two different triple antithrombotic regimens in patients undergoing coronary stent placement.

Patients with underlying atrial fibrillation, venous thromboembolism, or other coagulopathy necessitating the use of oral anticoagulation who are admitted for acute coronary syndromes or percutaneous coronary intervention between January 1, 2018 and October 1, 2020 will be included. These patients were identified using the Radial/Femoral Left Heart Catheterization Pathway utilized at the medical center and outpatient cardiology databases.

RESULTS: No difference was found in the incidence of thrombosis between patients in the clopidogrel regimen and ticagrelor regimen [41.3% vs. 26.2%, $p=0.0999$]. Similarly, there was no difference in any subset of bleeding or dyspnea between the two groups.

CONCLUSIONS: There is no difference in the rates of thrombosis or bleeding when comparing clopidogrel-based and ticagrelor-based triple antithrombotic therapy regimens when combined with aspirin and apixaban.

Y Pharmacist Perceptions and Willingness to Initiate COVID-19 Point-of-Care Testing in an Independent, Community Pharmacy Setting

Room G

Presenters: Carrie Lynch

TITLE: Pharmacist Perceptions and Willingness to Initiate COVID-19 Point-of-Care Testing in an Independent, Community Pharmacy Setting

AUTHORS: Carrie Lynch, Patricia H. Fabel, Tessa Hastings, Bryan Love, Gene Reeder

OBJECTIVE: Outline potential implementation strategies for COVID-19 point-of-care testing in an independent, community pharmacy.

SELF ASSESSMENT QUESTION: What are the primary reasons for hesitation among independent, community pharmacists when considering point-of-care testing within their practices?

BACKGROUND: Identify implementation strategies for COVID-19 point-of-care testing in independent, community pharmacies based on pharmacists' current perceptions and perceived barriers.

METHODOLOGY: Eligible participants are pharmacists who maintain an active pharmacist license and are currently practicing in an independent, community pharmacy setting. The survey is part of a larger study of South Carolina pharmacists. A 44-item survey was distributed to pharmacist managers in South Carolina by mailing a postcard with a QR code to the online survey. Factors associated with willingness to implement COVID-19 point-of-care testing will be analyzed by differentiating participants into groups based on pharmacist and practice site characteristics and the existence of the Community Pharmacy Enhanced Services Network's (CPESN) required, core services within the practice.

RESULTS: There was a statistically significant correlation between CPESN enhanced pharmacy status and both the patient-related factors and testing follow-up categories (p -value=0.005 and 0.012, respectively). The correlation involving operations-related factors was not statistically significant (p -value=0.494).

CONCLUSIONS: Independent pharmacies seem more equipped to conduct POC testing when compared to chain pharmacies based on CLIA waiver status. However, there is need to improve status across all practice settings. There is a need to develop strategies to implement COVID-19 POC testing within the pharmacy so as to not interfere with daily workflow as this is the biggest concern for pharmacists within this study. Significant correlations were found between enhanced pharmacy status and patient-related and testing follow-up related barriers. Those pharmacies with enhanced services were more likely to report fewer barriers to POC testing implementation.

Presenters: Sarah Lopez

TITLE: Evaluating Different Regular Insulin Doses for the Treatment of Hyperkalemia

AUTHORS: Sarah Lopez, Joseph Crosby, Amanda Bass, Sabrina Croft

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the role of insulin in effectively and safely lowering potassium.

SELF ASSESSMENT QUESTION: What factors may help with the safety of insulin use for lowering high potassium levels?

BACKGROUND: Determine if there is a difference in treatment efficacy and safety outcomes when using ≥ 10 units and < 10 units of regular insulin dosing in the treatment of hyperkalemia.

METHODOLOGY: A retrospective, observational chart review of adult patients seen at St. Joseph's/Candler Health System who experienced hyperkalemia and were treated with insulin from August 2018 to September 2020. Eligible patients were those who were inpatient, ≥ 18 years of age who were not pregnant and had not experienced hypoglycemia from other causes. Key data points were collected in order to determine if patients were treated safely and effectively with either ≥ 10 units or < 10 units of regular insulin in the treatment of hyperkalemia.

RESULTS: Four hundred and three patients were included in the IRB-approved study. Of those, 86% were treated for hyperkalemia received 10 units insulin or more for their first dose and 69% achieved a serum potassium of < 5.4 mg/dL. Of the 14% of patients who received less than 10 units for their first dose, 76% achieved a serum potassium of < 5.4 mg/dL ($p=.272$). The rate of hypoglycemia in patients receiving ≥ 10 units of insulin was 11%, whereas 7% of those receiving < 10 units experienced hypoglycemia ($p=.345$). All patients underwent follow-up potassium and blood glucose checks, with the average potassium check taking place 11 hours after insulin administration and the average blood glucose check taking place 5 hours post-administration.

CONCLUSIONS: Patients experienced similar efficacy and safety outcomes when treated with ≥ 10 units or < 10 units regular insulin for the treatment of hyperkalemia. Though hypoglycemia occurred more often in patients receiving ≥ 10 units, the overall incidence (11%) was low and not statistically significant.

AUDIOVISUAL RECORDING LINK: <https://youtu.be/3oDscS80ti8>

Presenters: Kelli Keats

Link to Presentation: <https://vimeo.com/537449272>

TITLE: Evaluation of Loading Dose Strategies for Phenytoin/Fosphenytoin for Overweight Patients Using Either Actual or Adjusted Body Weight

AUTHORS: Kelli Keats, Rebecca Powell, Jody Rocker, Lindsey Sellers Coppiano

OBJECTIVE: Identify the optimal loading dose strategy for phenytoin in overweight patients

SELF ASSESSMENT QUESTION: How would you calculate a fosphenytoin loading dose for a patient who weighs 130% of their ideal body weight (IBW)?

BACKGROUND: Traditional loading doses of phenytoin or fosphenytoin are usually 15-20 mg/kg. However, the appropriate dosing strategy in overweight patients is unknown. The purpose of this study is to determine the optimal loading dose strategy of phenytoin/fosphenytoin in overweight patients by comparing the percent of patients achieving the goal serum drug level after a 20mg/kg loading dose using actual body weight (ABW) versus adjusted body weight (AdjBW).

METHODOLOGY: Patients were included if they received a loading dose of phenytoin/fosphenytoin of at least 10mg/kg ABW, had a phenytoin level drawn less than 6 hours after the end of the infusion, and weighed at least 120% of their IBW. Patients were excluded if they received intramuscular phenytoin or were already taking phenytoin.

RESULTS: This single-center, retrospective review included 195 patients (128 in AdjBW group and 67 in ABW group). There were no differences in baseline age, sex, body mass index, history of seizures, or kidney or liver dysfunction. Patients in the AdjBW group weighed more (96.2kg vs. 91.2kg, $p=0.04$) and received a lower dose in milligrams (1364 vs. 1760, $p<0.0001$) and in mg/kg of ABW (14.2 vs. 19.3, $p<0.0001$). The primary outcome of a post-load phenytoin level between 10-20mcg/mL was achieved in 74% of patients in the AdjBW group and 57% of patients in the ABW group ($p=0.02$). Additionally, patients in the ABW group were more likely to have a supratherapeutic level (>20 mcg/mL) (43% vs. 22%, $p=0.003$) although adverse reactions (nystagmus, ataxia, bradycardia, and hypotension) did not differ between the groups.

CONCLUSION: Patients weighing $>120\%$ of their IBW should be dosed with 20mg/kg based on AdjBW to achieve a therapeutic phenytoin concentration of 10-20mcg/mL.

Presenters: Elizabeth Anderson

TITLE: Clinical and economic impact of procalcitonin testing at an academic tertiary care medical center

AUTHORS: Elizabeth Anderson, Cyle White, Brittany White, Emily Goodwin

OBJECTIVE: Determine a clinically and economically appropriate role for PCT testing at the study institution.

SELF ASSESSMENT QUESTION: What effect on antimicrobial therapy duration does PCT testing have at the study institution?

BACKGROUND: In 2017, the US Food and Drug Administration approved procalcitonin (PCT) testing to guide antibiotic therapy in patients with acute respiratory infections. Guidelines by the Infectious Diseases Society of America recommend PCT use to guide de-escalation of antibiotic therapy in certain disease states such as community acquired pneumonia. Erlanger Health System permits the use of PCT to aid in clinical decision making and transitioned from send-out to in-house PCT testing in 2018. The aim of this study is to evaluate the clinical and economic benefits of rapid in-house PCT testing compared with delayed send-out testing.

METHODOLOGY: This is a single center, retrospective, observational study. This study included adult patients admitted to Erlanger Health System who received PCT monitoring in response to a suspected or confirmed infection. Pregnant patients were excluded from this study. Two cohorts were compared, with the first consisting of patients who had PCT levels prior to implementation of in-house, or delayed result PCT testing in November 2018 and the second consisting of patients with PCT levels after the implementation of in-house, or rapid result PCT testing after November 2018. Data was collected using chart review. The primary outcome of this study is total duration of antimicrobial therapy between groups. Secondary outcomes include cost of antimicrobial therapy and PCT testing, number of PCT tests ordered, incidence of *Clostridioides difficile*, mention of PCT testing as a reason to discontinue antimicrobial therapy in the electronic medical record, and number of PCT orders on patients with comorbidities known to affect PCT levels irrespective of infection.

RESULTS: In process .

CONCLUSIONS: In process.

LINK <https://www.youtube.com/watch?v=YhzkgJULx2M>

Presenters: Natalie Ramsey

TITLE: The Use of Convalescent Plasma Therapy in the Management of COVID-19: A Retrospective Study

AUTHORS: Natalie Ramsey, Matt McAllister, Deanna Tabb, Saad Aldosari

OBJECTIVE: Determine if ABO compatible COVID-19 convalescent plasma is a viable treatment option for COVID-19
 SELF ASSESSMENT QUESTION: Does the use of ABO compatible COVID-19 convalescent plasma reduce length of hospital stay in patients diagnosed and hospitalized with COVID-19?

BACKGROUND: SARS-COV-2 or COVID-19 has infected millions worldwide and has become a world pandemic since December 2019. As of September 2020, there were still limited treatment and vaccine options, leaving a strain on the health care system and an urgent need for effective therapies. The use of convalescent plasma for treatment of COVID-19 was initiated in early April 2020 through the Expanded Access Program to help with the need of new therapies. Since the use of convalescent plasma for COVID-19 is still new, questions regarding efficacy still remain. The purpose of this study is to assess the safety and efficacy of ABO compatible COVID-19 convalescent plasma compared to supportive care in patients hospitalized and diagnosed with a positive PCR COVID-19 test.

METHODOLOGY: An IRB approved retrospective chart review of patients with a confirmed diagnosis of COVID-19 from a positive PCR COVID-19 test who received ABO compatible convalescent plasma for COVID-19 from March 1, 2020 to August 31, 2020 were compared to similar patients who did not receive convalescent plasma. Patients were excluded if hospital mortality occurred within 3 days of positive PCR COVID-19 result, if they received at least 1 dose of remdesivir, or if they did not receive supplemental oxygen. The primary outcome was change in length of hospital stay. The secondary outcomes include clinical recovery at 28 days, clinical improvement at 28 days, all-cause mortality at 14 and 28 days, change in severity score at 14 and 28 days from baseline, and change in laboratory values of inflammatory markers at 14 and 28 days.

RESULTS: In progress

CONCLUSIONS: In progress

L Evaluating the Use of Direct Oral Anticoagulants in Renal Dysfunction at an Academic Medical Center

Room E

Presenters: Aasna Patel

TITLE: Evaluating the Use of Direct Oral Anticoagulants in Renal Dysfunction at an Academic Medical Center

AUTHORS: Aasna Patel, Leah Ann Durham, Margaret Pate, Amy Weiss

OBJECTIVE: Summarize the findings regarding the use of DOACs in patients with renal dysfunction.

SELF ASSESSMENT QUESTION: Which of the following patient populations experienced the most adverse events on their home dose of apixaban or rivaroxaban?

BACKGROUND: Direct oral anticoagulants (DOACs) offer more predictable pharmacokinetics, fewer drug interactions, and fixed dosing strategies making them attractive options for anticoagulation. Because of limited data for dosing guidance in renal dysfunction, including patients with either end stage renal disease (ESRD) or chronic kidney disease (CKD), there is a concern for adverse events related to suprathreshold or subtherapeutic dosing of DOACs. This project assessed adverse events of patients with renal dysfunction defined as ESRD or CKD who were admitted to UAB Hospital while receiving a DOAC at home.

METHODOLOGY: A retrospective chart review was conducted for patients admitted to UAB Hospital in 2020 on apixaban or rivaroxaban with ESRD or CKD. DOAC indication, adverse event experienced (bleeding or thrombotic event), and renal function were all documented.

RESULTS: Out of the 120 patients evaluated, 20 patients experienced an adverse event related to the use of their DOAC. The majority of patients had ESRD (18/20, 90%), were on apixaban (19/20, 95%), had a bleeding event (14/20, 70%). However, 6/20 (30%) had a thrombotic event. Nineteen patients (95%) were discharged from the hospital after their event. Of the nineteen patients discharged, six patients left without anticoagulation (32%), two were discharged on a different agent (11%), and eleven were continued on the same agent (57%). Three patients who continued the same agent had dose changes (27%).

CONCLUSIONS: A variety of dosing strategies were observed in this patient population. Patients with ESRD seem to be at the highest risk for adverse events. Careful consideration of benefit versus harm and further investigation is needed to determine optimal dosing strategy.

Video Presentation: <https://www.youtube.com/watch?v=XDmwEtmGLRg>

O Evaluation of Immunization Rates After Implementation of a Vaccination Program for Oncology Patients

Room A

Presenters: Taylor Turner

TITLE: Evaluation of Immunization Rates After Implementation of a Vaccination Program for Oncology Patients

AUTHORS: Taylor Turner, Samantha Schmidt, Benjamin Britt

OBJECTIVE: Identify the impact on immunization compliance rates after implementation of a vaccination program for newly diagnosed oncology patients.

SELF ASSESSMENT QUESTION: What impact can pharmacists make on vaccine education and program implementation?

BACKGROUND: Patients with cancer are at increased risk for developing vaccine-preventable infections; this is often due to the malignancy itself, immunosuppressive therapy, or impaired host defenses. Infection can lead to serious complications and administration of recommended immunizations can reduce the morbidity and mortality associated with infection. The purpose of this study is to evaluate the newly implemented oncology vaccination program and its effect on immunization compliance rates.

METHODOLOGY: This pre-and post-intervention chart review was conducted to assess compliance rates for new adult oncology patients. Data for pre-intervention was collected from December 1, 2019 to February 28, 2020 and post-intervention was collected from December 1, 2020 to February 28, 2021. Established oncology patients, those with history of solid organ or bone marrow transplant, comfort care patients, or patients lost to follow up were excluded. The primary endpoint was to evaluate the impact on immunization rates after implementing a vaccination program for oncology patients. The evaluated vaccines included influenza, pneumococcal, varicella zoster, tetanus + pertussis, and human papillomavirus. Secondary endpoints included evaluation of the prevalence of adverse reactions and appropriateness of vaccination timing prior to chemotherapy initiation.

RESULTS: The pre-intervention group featured 309 patients with 159 in the inclusion group and an overall compliance rate of 5.7%. The post-intervention group featured 308 patients with 172 in the inclusion group and an overall compliance rate of 61.0%.

CONCLUSIONS: Implementation of a vaccination program significantly increased compliance rates in newly diagnosed oncology patients. These findings add important data to the limited body of studies on vaccine adherence in oncology patients.

Video link: <https://lexmed.wistia.com/medias/kdb3xtcsao>

1 Effect of Time-to-Therapeutic Tacrolimus Range on Early Rejection and Renal Dysfunction after Heart Transplant

Room F

Presenters: Alexis Nanni

TITLE: Effect of Time-to-Therapeutic Tacrolimus Range on Renal Dysfunction and Early Rejection after Heart Transplant

AUTHORS: Alexis Nanni, James Henderson, Mara Watson, Matt Harris, Lexie Zidanyue Yang, Adam DeVore

OBJECTIVE: Describe the association between tacrolimus time-to-therapeutic range, early renal dysfunction, and acute cellular rejection after heart transplant.

SELF ASSESSMENT QUESTION: True or **false**: this study found an increased risk of ACR with a longer TTT.

BACKGROUND: Tacrolimus remains the cornerstone of immunosuppressive therapy following heart transplantation (HT). Currently, clinicians may delay initiation to help mitigate nephrotoxicity. This study aimed to determine if there is an association between tacrolimus time-to-therapeutic range (TTT), early renal dysfunction, and acute cellular rejection (ACR) after HT.

METHODOLOGY: This was a retrospective, single center study. Patients included are adult patients who underwent HT at Duke University Hospital between July 2013 and April 2020. The primary endpoint was TTT among patients with and without new onset renal dysfunction. Other variables of interest included the occurrence of ACR, supratherapeutic tacrolimus levels, time from transplant to therapeutic tacrolimus range, and tacrolimus time-in-therapeutic range. Logistic regression analysis was utilized to model the association of TTT with new onset renal dysfunction after tacrolimus initiation, controlling for other known risk factors for renal dysfunction.

RESULTS: A total of 271 patients were included in the final analysis and 95% received basiliximab induction. In the unadjusted analysis, patients who developed new onset renal dysfunction after tacrolimus initiation post-HT had a significantly shorter TTT (11.9 vs 13.6 days, $p=0.049$). Patients were also more likely to have supratherapeutic tacrolimus trough concentrations compared to those who did not (64.2% vs 46.7%, $p=0.013$). When adjusted for other known risk factors there was a trend towards decreased rates of new onset renal dysfunction with longer TTT, but this did not reach statistical significance (OR 0.96; 95% CI [0.91, 1.01], $p=0.09$). There was no association in TTT between patients with and without ACR (13.8 vs 12.9 days, $p=0.263$).

CONCLUSIONS: In the unadjusted analysis, TTT and the incidence of supratherapeutic tacrolimus levels during the first 30 days post-HT were both associated with new onset renal dysfunction. After adjusting for known risk factors of renal dysfunction, TTT was not associated with new onset renal dysfunction. There was no association between TTT and ACR in the setting of high use basiliximab induction.

B IMPLEMENTING THE GOLD 2020 COPD GUIDELINE TREATMENT RECOMMENDATIONS IN VETERAN PATIENTS AT A PRIMARY CARE CLINIC

Room J

Presenters: Taylor Wood

TITLE: IMPLEMENTING THE GOLD 2020 COPD GUIDELINE TREATMENT RECOMMENDATIONS IN VETERAN PATIENTS AT A PRIMARY CARE CLINIC

AUTHORS: Taylor Wood, Thomas Worrall, Rebecca Malcolm

OBJECTIVE: Describe the symptomatic response of patients with COPD following medication therapy changes to align with the GOLD guideline recommendations.

SELF ASSESSMENT QUESTION: What is one potential benefit of ICS de-escalation in COPD medication therapy management?

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality in America. In 2017, the Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (GOLD) guidelines altered the pharmacotherapy recommendations to reflect the newest primary literature, questioning the utility of inhaled corticosteroids (ICS) in COPD. With the latest update, inhaled corticosteroids and long-acting beta-agonist (ICS/LABA) inhalers were no longer preferred for most, with long-acting muscarinic antagonists and long-acting beta-agonists (LAMA/LABA) inhalers playing a larger role. Although the GOLD guideline recommendations have been updated for years, many patients with COPD are not treated with the newest evidence-based COPD medications. Thus, the purpose of this project is to implement the treatment recommendations of the GOLD 2020 guidelines in Veterans with COPD.

METHODOLOGY: Quality improvement project conducted at a primary care clinic targeting ICS withdrawal via telehealth services. Veteran patients included were diagnosed with moderate to severe COPD per Gold 2020 Guidelines – Groups B and C treated with either an ICS/LABA or ICS alone. Patients with asthma, pregnancy, lung cancer, tuberculosis, or who required supplemental oxygen were excluded.

RESULTS: Of 148 veterans identified for ICS de-escalation, 31 patients were contacted for a pharmacotherapy encounter, with 20 of 31 patients able to be reached at the five-week follow-up appointment. The average CAT score at baseline was 15.1, which decreased to 12.8 at follow-up. No patients had emergency visits or hospitalizations for COPD during the study period.

CONCLUSIONS: Pharmacists can assist in implementing evidence-based COPD pharmacotherapy that improves clinical outcomes while also educating on the proper use of inhaler devices.

Presenters: Mackenzi Meier

TITLE: The Impact of Pharmacist Integration in the Primary Care Setting on Transitions of Care Outcomes

AUTHORS: Mackenzi Meier, Grace Simpson, Savannah Eason, Chelsea Keedy

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify the financial impact of having a pharmacist involved in the transitions of care process.

SELF ASSESSMENT QUESTION: Approximately how much revenue is missed when a patient is contacted by non-pharmacy staff post-discharge?

BACKGROUND: To determine the financial impact of ambulatory care pharmacists on transitional care management.

METHODOLOGY: A computer-generated list identified adult patients discharged from St. Joseph's/Candler (SJ/C) with a listed primary care provider within the SJ/C Primary Care Medical Group at Eisenhower. Patients discharged from the hospital that received a post-discharge phone call from a pharmacist were compared to those that received a call by another staff member. Data was collected regarding the financial and non-financial impact of pharmacist involvement.

RESULTS: There were 104 patients discharged from the hospital between November 2019-March 2020 meeting above mentioned criteria. Twenty-four patients were contacted by a pharmacist with 20 hospital follow up appointments scheduled. Total amount billed for those appointments was \$4,220 (average of \$211 per visit). Twenty-five calls were made by non-pharmacist staff with 23 appointments scheduled. Total amount billed for those appointments was \$2,445 (average of \$106 per visit). Of the patients contacted by someone other than the pharmacist, only 5 calls were by other clinical staff. Pharmacists made 33 clinical interventions including medication reconciliation, medication procurement, referrals, lab orders, and education. One intervention was made by non-pharmacist staff. The 30-day readmission rate for pharmacist contacted patients was 8% versus 12% for non-pharmacist contacted patients.

CONCLUSIONS: Pharmacist involvement in transitional care management services in the outpatient setting while integrated into a primary office of a health system is not well described. This data highlights an opportunity for pharmacists to contribute to increased revenue, reduced readmissions, and optimize clinical interventions upon hospital discharge.

<https://youtu.be/qLm7ci4J82Y>

Presenters: Gabrielle DuBruille

TITLE: Optimizing utilization of SGLT2 inhibitors in an outpatient heart failure population

AUTHORS: G DuBruille, B Sloan, L Straw, C Mardis, M Scalese, R Barfield, P McCann, S Napier, A Mardis

OBJECTIVE: Identify appropriate criteria for initiating an SGLT2 inhibitor in a patient with heart failure with reduced ejection fraction (HFrEF)

BACKGROUND: SGLT2 inhibitors (SGLT2i) decrease morbidity and mortality in patients with HFrEF. Specifically, empagliflozin and dapagliflozin have recently been recommended for HFrEF. The purpose of this study was to assess the impact of a provider education program and SGLT2i initiation protocol on SGLT2i prescribing and to determine barriers to SGLT2i utilization.

METHODOLOGY: This was a single center, retrospective, cross-sectional cohort study of an outpatient heart failure population. The primary outcome was the proportion of patients on SGLT2i therapy seen in clinic prior to (May/June 2019) and after (May/June 2020) pharmacist-led protocol development and provider education. Candidates for SGLT2i were those with NYHA Class II-IV symptoms, SBP \geq 120 mmHg (MAP \geq 80 mmHg for left ventricular assist device), and eGFR \geq 20 mL/min. Chi-square and t-tests were used to compare categorical and continuous data, respectively.

RESULTS: A total of 760 outpatient encounters were evaluated; most patient characteristics were similar between the pre- and post-protocol cohorts. In the pre-protocol cohort, 1% of patients received SGLT2i therapy, compared to 16% of patients in the post-protocol cohort ($p < 0.0001$). Patients with a recent heart failure hospitalization, eGFR < 45 mL/min, or > 60 years old were less likely to be initiated on therapy. In addition to improved rates of SGLT2i utilization, prescribing rates of other guideline-directed medical therapies (GDMT) also improved.

CONCLUSIONS: Pharmacist-led provider education and initiation protocols increased SGLT2i utilization in an outpatient heart failure population, as well as additional GDMT. Pharmacists play a vital role in improving SGLT2i utilization.

SELF ASSESSMENT QUESTION: Which of the following criteria is required to initiate empagliflozin in a patient diagnosed with HFrEF? (Select all that apply) A. eGFR ≥ 20 mL/min/1.73m² B. eGFR ≥ 30 mL/min/1.73m² C. NYHA Class II-IV D. Diagnosed with type 2 diabetes

Email: Gabrielle.Dubruille@prismahealth.org

Presentation link: <https://youtu.be/TApn5tmhTbA>

Presenters: Shannon Lawson

TITLE: Antimicrobial prophylaxis after penetrating brain injury

AUTHORS: Shannon Lawson, Alexandria Hall, Emily Durr, Christopher Morrison

OBJECTIVE: Describe the correlation between prophylactic antibiotic use and early CNS infection in patients with penetrating brain injury.

SELF ASSESSMENT QUESTION: (True/False) Antimicrobial prophylaxis for at least 5 days following penetrating brain injury is required to prevent CNS infection.

BACKGROUND: Characterize prophylactic antimicrobial use and associated outcomes in patients with a penetrating traumatic brain injury (pTBI) at a high volume ACS-verified level 1 trauma center

METHODOLOGY: A single-center retrospective evaluation was conducted, including all patients with a diagnosis of penetrating brain injury at Grady Memorial Hospital between 2016 and 2019. Patients less than 18 years of age or those discharged or deceased within 72 hours were excluded. The primary objective was to assess the rate of central nervous system (CNS) infection in patients with a pTBI. Secondary objectives included secondary infection rates, length of stay, and rate of adherence to the institutional guideline.

RESULTS: Thirty-six patients met inclusion criteria for the study. The mechanism of injury was categorized as a civilian gunshot wound for all 36 patients. Twenty-eight (77.8%) patients received 5 days or less of antimicrobial prophylaxis, and 8 (22.2%) patients received greater than 5 days. Three patients (8.3%) developed a CNS infection within 14 days, all 3 patients were in the group receiving 5 days or less of antimicrobial prophylaxis. Sixteen (44.4%) patients experienced a secondary infection (including pulmonary infection, surgical site infection, skin and soft tissue infection, bacteremia, and/or urinary tract infection). Zero patients received antibiotic coverage (both agent selection and duration) per institutional guideline. The most commonly utilized prophylactic antibiotic agents include: cefazolin (70.9%), vancomycin (41.9%), ceftriaxone (19.3%), and ampicillin/sulbactam (16.1%). Seven (22.6%) patients received only a single dose of prophylactic antibiotics, and 21 (66.7%) received 3 days or less of therapy.

CONCLUSIONS: Findings of this study suggest that there is variability in practice with regard to initiation of prophylactic antibiotics. Despite the low rate of adherence to the institutional guideline, the rate of CNS infection was comparable what has been observed in practice outside of this institution. Conservative use of antimicrobial prophylaxis can be considered in this patient population.

Presenters: Holly Lanham

TITLE: Evaluating the Safety of Rocuronium as an Alternative to Cisatracurium for Acute Respiratory Distress Syndrome

AUTHORS: H. Lanham, E. Konopka, A. Mathews, C. Rackley, B. Kram

OBJECTIVE: To describe differences in safety between continuous infusion cisatracurium and rocuronium in patients with ARDS.

SELF ASSESSMENT QUESTION: Cisatracurium is the most commonly studied NMB for moderate to severe ARDS in the past 5 years.

True

False

BACKGROUND: Neuromuscular blockers (NMBs) help facilitate prone positioning and are utilized in cases of refractory hypoxemia due to acute respiratory distress syndrome (ARDS), although the mortality benefit is still unclear. Limited safety and efficacy data exist for rocuronium in critically ill patients.

METHODOLOGY: This single-center, retrospective cohort study included patients with a continuous infusion NMB ordered for an indication of ARDS between September 2019 and December 2020. Included patients were 18 years of age or older admitted to the medical or surgical intensive care unit. Patients were stratified according to study medication and the presence or absence of SARS-CoV-2 during the hospital admission.

RESULTS: A total of 115 patients were included. Patients remained on continuous infusion NMB for a median duration of 2 days with the vast majority receiving concomitant infusions of opioids and propofol. The median (Q1, Q3) time spent in goal train of four (TOF) range was 50% (22.2%, 80%) for cisatracurium and 42.9% (7.1%, 66.7%) for rocuronium. In hospital mortality was observed in 53.5% in the cisatracurium group and 37.9% in the rocuronium group.

CONCLUSIONS: Cisatracurium and rocuronium appear to achieve a similar proportion of TOF within goal range. Continuous infusion rocuronium might be a reasonable alternative to cisatracurium for patients with moderate-severe ARDS requiring continuous NMB.

https://duke.zoom.us/rec/share/xzlpzI893QjicOnTdc_vYIr4BHRItN2OfJu62ceyQ3irNEoATecEw0GU10JPo8.5pHcmXnrjanSh-N?startTime=1618947975000

G Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System (VAHCS) Community Living Center (CLC)

Presenters: Heather Sherrill

TITLE: Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System (VAHCS) Community Living Center (CLC)

AUTHORS: Heather Sherrill, Brittany Melville, Camille Robinette

OBJECTIVE: Identify the change in DBI at CLC admission.

SELF ASSESSMENT QUESTION: How did the DBI change at SVAHCS CLC admission?

BACKGROUND: Medications with anticholinergic or sedative properties are commonly prescribed in older adults. The Drug Burden Index (DBI) quantitatively measures an individual's cumulative exposure to these medications. An increased DBI score has been associated with increased adverse events. The purpose of this project is to evaluate Veterans' DBI upon admission to the Salisbury VAHCS CLC.

METHODOLOGY: This is a retrospective quality improvement project. Eligible subjects included Veterans admitted to the SVAHCS CLC from January 1, 2019 to December 31, 2019 age 65 years and older and prescribed an anticholinergic or sedative medication(s) upon admission. The primary objective is to identify the change in DBI at CLC admission. Secondary objectives include describing DBI change from admission to three months following admission or at CLC discharge, comparing the change in DBI for those admitted for long-term versus short stay care, and assessing the number of falls per Veteran.

RESULTS: Seventy-three Veterans were included. There was no change in DBI score at admission for 69 (94.5%) Veterans. DBI score decreased at admission for 3 (4.1%) Veterans and increased for 1 (1.4%) Veteran. There was no change in DBI score for 61 (83.6%) Veterans from admission to three months or CLC discharge. There was no change in DBI score for the majority of Veterans admitted for both long-term versus short stay care (50% vs. 85.5% respectively). Veterans with a high DBI score had the highest fall rate during the study period of 22.6%.

CONCLUSIONS: The majority of Veterans admitted for both long-term and short stay care experienced no change in DBI score at CLC admission or at three months or discharge. Veterans with a high DBI score had more falls than those with low or medium scores.

LINK TO RECORDING: (3) Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System Community L - YouTube

Presenters: Ashley Rizzo

TITLE: Impact of Internal Medicine Pharmacists on Antimicrobial Stewardship (IMPAS)

AUTHORS: Ashley Rizzo, Sujit Suchindran, Benjamin Albrecht, Nicole Metzger

OBJECTIVE: Describe and characterize antimicrobial stewardship interventions made by internal medicine pharmacists to identify areas of stewardship that can be expanded to patients not covered by antimicrobial stewardship teams.

SELF ASSESSMENT QUESTION: Which barrier to implementation of antimicrobial stewardship interventions was encountered most frequently by internal medicine pharmacists?

BACKGROUND: Despite their known benefits, antimicrobial stewardship teams (ASTs) alone may not be able to evaluate all inpatients receiving antimicrobials. Internal medicine (IM) pharmacists within multidisciplinary teams in acute care hospitals reduce medication errors, improve transitions of care, and educate healthcare providers. However, little is known about the impact of IM pharmacists on antimicrobial stewardship. The purpose of this study is to describe and characterize antimicrobial stewardship interventions made by IM pharmacists to identify areas of stewardship that can be expanded to patients not covered by ASTs.

METHODOLOGY: This study is a prospective, observational, multicenter, descriptive study conducted at Emory University Hospital (EUH) and EUH Midtown. IM pharmacists and their trainees were recruited to document routinely made antimicrobial stewardship interventions from daily patient care activities. Documentation of interventions was completed using TheraDoc software or equivalent Microsoft Excel spreadsheet. Interventions were classified based on infection source, intervention type, whether recommendations were accepted or rejected by providers, as well as any barriers encountered to implementation. Pharmacists were included and recruited to participate if they were assigned to an adult IM service. The primary objective was to identify, describe, and characterize the most common antimicrobial stewardship interventions made by IM pharmacists. Secondary objectives include classification of interventions by type, acceptance of interventions by providers, and others. Data will be analyzed using descriptive statistics.

RESULTS: 208 interventions were made by 6 participants over 6 weeks and were accepted 95.2% of the time. Intervention on vancomycin was most common (30.3%), respiratory infections were most common (21.6%), and most common interventions were dose adjustment based on patient factors (26.9%) and shortened duration (20.7%). The most common barrier was physician concerns (46.7%).

CONCLUSIONS: IM pharmacists made several stewardship interventions during routine patient care that are typically accepted by providers. AST efforts and future outcomes research should be focused on vancomycin utilization, respiratory infections, adverse drug events, or effect of shortened antimicrobial therapy duration.

Link to Presentation: <https://youtu.be/9I-1TUQ8NE>

Presenters: Stephanie Karvosky

TITLE: Piperacillin-tazobactam versus cefepime for empiric gram-negative antimicrobial coverage in patients with sepsis

AUTHORS: Stephanie Karvosky, John Boreyko, Mark Vestal, Julie Thompson, Andrew Darkow

OBJECTIVE: Identify if patients with sepsis should be treated with piperacillin-tazobactam or cefepime for empiric gram-negative antimicrobial coverage, or if the regimens may be used interchangeably based on patient-specific risk factors.

SELF ASSESSMENT QUESTION: Should patients with sepsis be treated with piperacillin-tazobactam or cefepime for empiric gram-negative antimicrobial therapy?

BACKGROUND: Broad-spectrum, empiric antibiotics should be utilized in the initial management of sepsis. The empiric regimens of vancomycin plus piperacillin-tazobactam or cefepime are commonly utilized, but there is sparse literature comparing their gram-negative efficacy in sepsis.

METHODOLOGY: This study was a retrospective, observational, single-center cohort study evaluating patients with sepsis who received either vancomycin plus piperacillin-tazobactam or cefepime for empiric antimicrobial therapy. Participants were included if they were at least 18 years of age, had a diagnosis of sepsis, a provider-documented infection, and were treated with vancomycin plus either piperacillin-tazobactam or cefepime for a minimum of 48 hours. The primary endpoint was same-cause mortality at 30 days. Secondary endpoints included duration of hospital stay, time to first dose of antibiotics, incidence of acute kidney injury, incidence of central nervous system toxicity, and incidence of *Clostridioides difficile* infection.

RESULTS: There were no significant differences between treatment regimen groups regarding any demographic characteristics. The primary endpoint was not statistically significant between treatment regimens [X² (2, N = 146) = 1.42, P = 0.491]. Furthermore, there were no differences between treatment regimens in secondary endpoints, except for primary admission serum creatinine [piperacillin-tazobactam and cefepime, 1.1 vs. 1.6, P = 0.017].

CONCLUSIONS: There were no differences between piperacillin-tazobactam and cefepime for empiric antimicrobial gram-negative coverage in sepsis. Empiric regimens should be initiated based off patient-specific risk factors.

Presenters: Savan Patel

TITLE: Evaluation of Outcomes and Utilization of Adjunctive Therapy in COVID-19 Infections

AUTHORS: Savan Patel, Britney Bowers, Bethany Brock, Joe Rambo

OBJECTIVE: Identify the role of vitamin supplementation in COVID-19 infection.

SELF ASSESSMENT QUESTION: What is the NIH recommended dose of dexamethasone in hospitalized patient indicated for the use of dexamethasone for the treatment of COVID-19 infection?

BACKGROUND: SARS-CoV-2, a highly contagious virus was identified in late 2019 to cause corona virus disease 2019 (COVID-19). The approach to management of patients with SARS-CoV-2 is based on limited data and evolves rapidly as new clinical data emerges. Currently, the limited evidence of supportive therapy for COVID-19 patients has resulted in providers using therapy utilized in other respiratory illnesses. NIH recommends for the use of corticosteroids in severe COVID-19 patients requiring supplemental oxygen. NIH has no recommendation for or against the use of supplement vitamin C, vitamin D and zinc. This chart review will identify the role of adjunctive therapy (corticosteroids, vitamin C, vitamin D and zinc) in the treatment of COVID-19 in hospitalized patients.

METHODOLOGY: Single center, institutional IRB approved, retrospective chart review of hospitalized patients with confirmed COVID-19 infection was conducted. Patients with 18 years of age or older, confirmed COVID-19 infection and hospitalization LOS \geq were included in the chart review. Patients that received systemic corticosteroids were compared to patients that did not receive systemic corticosteroids. And, patients that received vitamin C, vitamin D and zinc were compared to patients that did not receive vitamin C, vitamin D and zinc. Length of hospitalization days, length of ICU days, supplemental oxygen requirements, length of ventilation use and mortality was analyzed to identify the effect of vitamins and systemic steroids on clinical outcomes in patients with COVID-19 infection.

RESULTS: The Vitamin Treatment Group (n=123) had shorter ICU LOS by 3.5 days (11.6 vs 15.1 days), similar length on supplemental oxygen (9.6 vs 10.1 days), shorter ventilation days by 1.4 days (10.9 vs 12.3 days) and reduced mortality (6.5% vs 14.3%), but had longer LOS by 1.4 days (11.2 vs 9.8 days) compared to the Vitamin Control Group (n=77). The Steroid Treatment Group (n=83) had longer ICU LOS by 4 days (12.3 vs 8.3 days), longer supplemental oxygen use by 2.3 days (10.7 vs 8.4 days) and longer ventilation days by 4.7 days (13.4 vs 8.7 days), but had reduced mortality (12% vs 14.8%) compared to the Steroid Control Group (n=61).

CONCLUSIONS: Addition of vitamin D, vitamin C and zinc should be considered for hospitalized patients. Vitamins provided mortality benefit in hospitalized patients and corticosteroids provided mortality benefit in patients requiring supplemental oxygen in hospitalized patients, but it is unknown if the outcomes observed in this chart review are statistically significant.

PRESENTATION LINK: <https://youtu.be/ljkhRmRR-3Y>

Presenters: Montana Fleenor

TITLE: Evaluation of a Prior to Admission (PTA) Medication Reconciliation Risk Scoring Tool

AUTHORS: Montana Fleenor;Lauren McCluggage;Ryan Schell;Halden VanCleave;Scott Nelson

OBJECTIVE: Describe the utility of an admission medication reconciliation risk scoring tool for identifying patients at high risk for medication discrepancies.

SELF ASSESSMENT QUESTION: True or False: The admission medication reconciliation risk scoring tool identified patients at high risk for medication discrepancies.

BACKGROUND: Medication reconciliation is vital in preventing medication errors during transitions of care. Implementation of effective medication reconciliation, however, remains a challenge for healthcare systems due to cost and resource constraints. The objective of this study was to evaluate a risk scoring tool for identifying patients at high risk for medication discrepancies and therefore prioritized for pharmacy intervention with admission medication reconciliation.

METHODOLOGY: Single-center, retrospective study at an academic medical center including patients \geq 18 years of age with a medication history note written by a pharmacy staff member. The primary outcome was number of changes made to the prior to admission (PTA) medication list by pharmacy staff. Secondary outcomes included changes in risk score after medication reconciliation was completed, the number of changes based on individual criteria for risk score, and the number of clinically-relevant changes from a randomized subgroup of patients.

RESULTS: Preliminary results: The study included 10,713 patient encounters.

CONCLUSIONS: In progress

B Comparison of Glycemic Characteristics and Outcomes of People with Diabetes in the Presence or Absence of COVID-19 Infection: A Retrospective Cohort Study

Presenters: Sarah Piraino

TITLE: Comparison of Glycemic Characteristics and Outcomes of People with Diabetes in the Presence or Absence of COVID-19 Infection: A Retrospective Cohort Study

AUTHORS: Sarah Piraino, Jennifer Clements, Karen Bryson

OBJECTIVE: At the conclusion of the presentation, the participant should be able to: Describe differences in glycemic control and diabetes medications between people with diabetes in the presence or absence of COVID-19 infection following a hospitalization.

SELF ASSESSMENT QUESTION: True or false: Following a hospitalization, people with diabetes and COVID-19 infection had a significantly higher A1C level post-discharge than those with diabetes without COVID-19 infection.

BACKGROUND: Diabetes is a significant comorbidity in mortality and poor clinical outcomes during COVID-19 infection. Literature exists on inpatient management of diabetes and COVID-19 infection. However, glycemic characteristics after hospital admission have not been investigated. The purpose of this study was to explore glycemic outcomes between people with diabetes in the presence or absence of COVID-19 infection.

METHODOLOGY: In a retrospective chart review between March 1, 2020 and July 31, 2020, criteria for Group 1 included people with diabetes and COVID-19 infection, whereas Group 2 included people with diabetes without COVID-19 infection. The primary endpoint was a comparison of A1C levels prior to hospital admission and post-discharge between Group 1 and Group 2. Secondary outcomes were changes in number of medications for diabetes, including insulin doses.

RESULTS: Thirty-eight patients met inclusion criteria for Group 1 and thirty-eight patients were matched for Group 2. Baseline characteristics were similar except for higher anion gap ($p=0.02$) in Group 1 and active smoking status ($p=0.02$) in Group 2. There was no difference in the primary outcome ($p=0.07$) between the groups. No differences were found in the number of post-discharge medications ($p=0.30$), insulin doses ($p=0.12$), or number of injections ($p=1.00$) between the groups.

CONCLUSIONS: There were no significant findings when evaluating post-discharge A1C between people with diabetes in the presence or absence of COVID-19 infection. This study had a small sample size and further research may be needed to determine long-term effects of COVID-19 on glycemic control.

Presentation Link: <https://youtu.be/aCnrwBfmQlw>

Presenters: Emily Blaine

TITLE: Evaluation of a High-Risk Patient Program in a Pharmacist-Led Ambulatory Care Clinic

AUTHORS: Emily Blaine, Fallon Hartsell, Courtney E. Gamston, Kimberly Braxton Lloyd

OBJECTIVE: At the conclusion of my presentation, the participant will be able describe common clinical interventions associated with a “high-risk” program.

SELF ASSESSMENT QUESTION: Name three common clinical interventions associated with a “high-risk” program.

BACKGROUND: Uncontrolled disease states place patients at high risk for long term complications and are associated with increased healthcare costs. Pharmacist-led chronic disease state management has been shown to improve patient outcomes and decrease these burdens. The purpose of this study is to evaluate the impact of a comprehensive medication management (CMM) service that targets patients with chronic conditions that are commonly uncontrolled and/or associated with increased healthcare spending.

METHODOLOGY: This project is a single-center, retrospective service evaluation focused on the clinical impact of a service that targets “high-Risk” patients with chronic conditions. Patients were invited to participate in this service if they had the Auburn University insurance and were recently hospitalized, identified as having an uncontrolled disease state through an employer-sponsored biometric screening program, or identified as having polypharmacy by the university’s employee pharmacy. Participants received monetary incentives to participate. A clinical pharmacist of the Auburn University Pharmaceutical Care performed CMM to identify and address patient-specific disease state management needs. Other members of the patient’s healthcare team were contacted with clinical recommendations, as indicated to optimize patient outcomes. Outcomes include changes in clinical markers and number and types of interventions recommended and accepted.

RESULTS: 143 patients were seen for a total of 518 appointments. During those visits, 1130 interventions (ADD AVG +/- SD) were recommended with a 28.4% acceptance rate. Both A1C and total cholesterol significantly decreased from baseline.

CONCLUSIONS: This pharmacist-led ambulatory care service identified numerous opportunities for intervention in patients at high-risk for poor health outcomes. Other outcomes included maintaining and improving clinical markers and optimizing non-pharmacologic and pharmacologic therapy.

YouTube link: <https://youtu.be/EkcLib-DE-g>

Google Docs: <https://docs.google.com/presentation/d/1cN8AhKobU8kc4dnNqR-uKsO2qZ-Zv9cx3LWdfO1SnJk/edit?usp=sharing>

Presenters: Anju Balani

TITLE: IMPACT OF FIXED VERSUS WEIGHT BASED INITIAL FLUID RESUSITATION FOR SEPSIS IN PATIENTS WITH CONGESTIVE HEART FAILIURE

AUTHORS: Anju Balani, Brooke Lucas, Luke Jones, Gregory Givens, Ashley Costello

OBJECTIVE: Identify trends in sepsis management that could have an indirect impact on patients’ cardiovascular outcomes

SELF ASSESSMENT QUESTION: According to CMS Core Measures, what volume of fluid resuscitation is recommended for all patients with severe sepsis or septic shock?

BACKGROUND: Determine if a weight based versus fixed dose of fluid resuscitation for sepsis have an impact on cardiovascular related 30-day readmission incidence.

METHODOLOGY: Retrospective chart review was conducted to identify patients between July 1,2019 and June 31,2020. Eligible participants had a history of heart failure, presented with a diagnosis of sepsis and received NS. The primary endpoint is 30-day readmission incidence for cardiovascular- related causes. Secondary endpoints include hospital length of stay, in-hospital mortality, 30-day mortality, need for intubation, and time to negative fluid balance.

RESULTS:54 patients were included, 33 in the fixed dose group and 21 in the weight based group. 4 patients in the fixed group, and 1 in the weight group experienced the primary outcome (p=1.00). 4 patients in the fixed group and 8 in the weight group had an in hospital mortality (p <0.05). There were no differences identified in any other secondary outcome.

CONCLUSIONS: Fixed dose initial fluid resuscitation in patients with underlying heart failure, did not lower re-admission rates when compared to guideline recommended weight-based approach.

Presenters: Katelyn Jimison

TITLE: Evaluation of antibiotic use following cardiac arrest

AUTHORS: Katelyn Jimison, Tyler Chanas

OBJECTIVE: Describe incidence of positive cultures and common pathogens following cardiac arrest.

SELF ASSESSMENT QUESTION: Which empiric antibiotic regimens may be most appropriate following cardiac arrest?

BACKGROUND: Infections may be common following cardiac arrest, but data are limited to guide antibiotic therapy. Current guidelines from the American Heart Association for post-cardiac arrest care do not make clear recommendations regarding the use of antibiotics in this patient population. The purpose of this study is to characterize the use of empiric antibiotics after cardiac arrest.

METHODOLOGY: This retrospective analysis included adult patients with documented ROSC after in-hospital or out-of-hospital cardiac arrest admitted to an intensive care unit between January 2018 and December 2019. Patients with known infection receiving antibiotics prior to cardiac arrest were excluded. The primary endpoint was incidence of positive cultures following cardiac arrest. Secondary outcomes included empiric antibiotics administered within 7 days of cardiac arrest, organisms identified on culture, and survival to hospital discharge. A total of 758 patients were screened and 625 patients were included for analysis.

RESULTS: 193 (31%) of patients had one or more positive cultures within 7 days following cardiac arrest. Incidence of positive cultures was not significantly different between patients with in-hospital versus out-of-hospital arrest. The most common organisms identified on culture were Gram-negative organisms other than SPACE/SPICE organisms. MRSA and *Pseudomonas* were isolated in cultures from only 2% and 5% of patients, respectively. 357 (57%) of patients received one or more antibiotics within 7 days following arrest. The most commonly administered antibiotics were vancomycin and piperacillin-tazobactam.

CONCLUSIONS: Incidence of positive cultures is fairly low following cardiac arrest, and location of arrest does not appear to significantly impact likelihood of positive culture. Many patients receive broad spectrum antibiotics including MRSA and *Pseudomonas* coverage. The low incidence of these organisms on culture presents an opportunity for selection of more narrow antimicrobial regimens in patients with concern for infection following cardiac arrest.

LINK TO PRESENTATION: <https://youtu.be/p5BN7jvviAI>

Presenters: Layne Reihart

TITLE: Evaluation of vancomycin pharmacokinetic alterations in patients with hemorrhagic stroke on concomitant hypertonic saline therapy

AUTHORS: Layne Reihart, Alyson Wilder, Erin Creech

OBJECTIVE: Describe the effects of concomitant hypertonic saline therapy on vancomycin pharmacokinetic parameters in patients with hemorrhagic stroke.

SELF ASSESSMENT QUESTION: True/False: The investigators hypothesized that, in patients with hemorrhagic stroke, concomitant use of hypertonic saline is associated with reduced clearance of vancomycin.

BACKGROUND: Augmented clearance of vancomycin has previously been described in patients with hemorrhagic stroke. Due to renal regulation of sodium reabsorption and excretion, this augmented clearance may be more pronounced in patients also receiving hypertonic saline. The purpose of this study was to evaluate vancomycin pharmacokinetic parameters in Neuroscience Intensive Care Unit (NSICU) patients with hemorrhagic stroke on concomitant hypertonic saline therapy.

METHODOLOGY: This was a single-center, retrospective cohort study of adult patients admitted to the NSICU with hemorrhagic stroke who received vancomycin between January 1, 2018 and January 1, 2020. Patients with acute kidney injury or renal replacement therapy were excluded. Patients who received hypertonic saline were compared to patients who did not receive hypertonic saline. The primary outcome was the difference between the estimated and actual vancomycin elimination rate constant (k_e) and half-life. Secondary outcomes included weight-based daily vancomycin requirements, vancomycin AUC:MIC achieved, and estimated creatinine clearance based on vancomycin clearance.

RESULTS: There were 75 patients in the control group and 3 patients in the hypertonic saline group. Patients in the hypertonic saline group were younger, had a higher creatinine clearance, and had a higher daily urine output. The actual vancomycin k_e was significantly higher in the hypertonic saline group (0.12 vs 0.09, $p=0.045$), and there was a trend toward a shorter half-life in this group (5.6 vs 7.7 hours, $p=0.054$).

CONCLUSIONS: In patients on vancomycin and concomitant hypertonic saline therapy, there was a trend towards augmented vancomycin clearance demonstrated by a larger actual k_e , a larger difference between the predicted and actual k_e , and a shorter actual half-life.

Email: layne.reihart@prismahealth.org

Presentation Link: https://youtu.be/clPxM0TF9_g

G Implementation of VIONE, a Medication Management Deprescribing Tool, in Home-Based Primary Care and Community Living Centers at a Veteran Affairs Medical Center Room F

Presenters: Natalie Kirkley

TITLE: Implementation of VIONE, a Medication Management Deprescribing Tool, in Home-Based Primary Care and Community Living Centers at a Veteran Affairs Medical Center

AUTHORS: Natalie Kirkley, Chad Potts, Deborah Hobbs

OBJECTIVE: Describe the purpose of implementing a medication management tool aimed at reducing polypharmacy in geriatric patients.

SELF ASSESSMENT QUESTION: What are some barriers associated with medication deprescribing?

BACKGROUND: Polypharmacy, defined as the regular use of at least five medications, plagues the United States healthcare system and affects 42% of the geriatric population. Through medication management and proper deprescribing, the negative consequences associated with polypharmacy can be mitigated. Thus, VIONE, a medication management tool aimed at reducing polypharmacy, was created. VIONE methodology includes reviewing patient profiles and classifying medications into one of five categories: Vital, Important, Optional, Not indicated, or Every medication has an indication. The purpose of this project is to deprescribe unnecessary and potentially harmful medications at the CVVAMC through implementation of VIONE into the Home-Based Primary Care (HBPC) and Community Living Centers (CLCs).

METHODOLOGY: This quality improvement project was approved by the local P&T committee. To be included, Veterans had to be at least 65-years old, enrolled in HBPC or a CLC, and have 15 or more active prescriptions. Hospice patients were excluded. Chart reviews were performed using the VIONE template located in the computerized patient record system (CPRS). Medications found to be "vital" or "important" were maintained. Those found to be "optional" or "not indicated" were recommended for further review by the provider or recommended to be discontinued. All recommendations were documented in CPRS. Shared clinical decisions were made by pharmacist, provider, and patient in regards to any medication adjustments or discontinuations. Data collection is ongoing and includes the total number of Veterans impacted by VIONE, total number of medications deprescribed, classification of deprescribed medications based on pharmaceutical class, and total cost avoidance.

RESULTS: As presented

CONCLUSIONS: As presented

I Adherence to institutional diagnostic stewardship tool for Clostridioides difficile testing Room I

Presenters: Joseph Torrisi

TITLE: Adherence to institutional diagnostic stewardship tool for Clostridioides difficile testing

AUTHORS: Joseph Torrisi, Emily Drwiega, Sheetal Kandiah, Saira Rab, Shreena Advani

OBJECTIVE: Identify the most common reasons for inappropriate C. difficile testing.

SELF ASSESSMENT QUESTION: What was the most common reason for provider non-adherence to the stewardship tool?

BACKGROUND: Grady Health System (GHS) implemented a C. difficile infection (CDI) diagnostic stewardship tool to improve accurate diagnosis of infection, and prevent unnecessary treatment in colonized patients. The components of this tool include questions about patient stool burden, receipt of laxatives, and initiation of tube feeds that must be answered prior to ordering the C. difficile test. This study aims to assess providers' adherence to the CDI diagnostic tool at GHS.

METHODOLOGY: A retrospective chart review of 250 C. difficile tests performed between February 18, 2019 and February 17, 2020 was conducted. The primary outcome was the percent of C. difficile tests ordered that met composite adherence to the diagnostic stewardship tool. Composite adherence was defined as patients having > 3 stools in 24 hours without receipt of laxatives for 48 hours or initiation of tube feeds in 72 hours.

RESULTS: Of the 250 evaluable tests, 67% (n = 167) met composite adherence to the diagnostic stewardship tool. The most common reasons for non-adherence included a lack of stool documentation (n = 62) or the receipt of laxatives (n = 34). Forty-one (89%) of the 46 patients with positive tests that didn't meet composite adherence for testing, received CDI treatment. Patients with positive CDI tests not meeting composite adherence had a median iLOS of 13 days compared to 6 days for those meeting adherence.

CONCLUSIONS: Providers maintained adherence to the diagnostic stewardship tool for most CDI tests. Education to providers about laxative discontinuation prior to testing and nursing about the importance of quantifying stools in the medical chart is an area of improvement that may reduce the number of inappropriate CDI tests.

Presentation: <https://drive.google.com/file/d/1RCi3LElqKzEG6gmD7ZbSAAu1o4XRv0Ve/view?usp=sharing>

I Sustained Impact of an Antibiotic Stewardship Initiative Targeting Asymptomatic Bacteriuria and Pyuria in the Emergency Department

Presenters: Catie Cash

TITLE: Sustained Impact of an Antibiotic Stewardship Initiative Targeting Asymptomatic Bacteriuria and Pyuria in the Emergency Department

AUTHORS: Mary Catherine Cash, Garrett Hile, Jim Johnson, Tyler Stone, James Beardsley

OBJECTIVE: To describe the sustained impact of an antimicrobial stewardship initiative on the rate of inappropriate treatment of asymptomatic bacteriuria (ASB) and pyuria (ASP) in the Emergency Department (ED).

SELF ASSESSMENT QUESTION: Does a multi-faceted stewardship initiative result in a sustained improvement in inappropriate treatment of ASB and ASP in the ED?

BACKGROUND: A stewardship initiative targeting the inappropriate treatment of ASB and ASP in the ED of Wake Forest Baptist Medical Center was completed in November 2016. A pre-post intervention analysis demonstrated improvement in the rate of inappropriate treatment of ASB and ASP immediately following the intervention; however, its sustained impact is unknown.

METHODOLOGY: This study involves an assessment to determine the sustainability of the November 2016 initiative, a re-education initiative, and an assessment to determine the impact of the re-education. Patients will be included if they were ≥ 18 years old, discharged from the ED during one of the study periods, and had a positive urine culture or pyuria. Patients will be excluded if they had signs or symptoms of a urinary tract infection, another infection requiring antibiotics, an indwelling catheter, ureteral stent, or nephrostomy tube or if pregnant or immunocompromised. The primary outcome is the proportion of patients prescribed antibiotics within 72 hours of discharge from the ED. Secondary outcomes include the number of urine cultures ordered in the ED per 1,000 ED discharges and the number of patients returning to the ED with symptomatic UTI within 30 days of discharge. Patients in this study's pre-intervention (November 2019 – June 2020) will be compared to the 2016 study's post-intervention group to determine the sustained impact of the 2016 intervention. This study's pre-intervention group will be compared to this study's post-intervention group (November 2020 – June 2021) to determine the impact of re-education.

RESULTS: In progress.

CONCLUSIONS: In progress.

LINK TO PRESENTATION: https://youtu.be/SfL_ebmKhEM

Presenters: Kendra Ford

TITLE: Evaluation of Adherence to a Guideline-Based Acute Sickle Cell Pain Crisis Clinical Pathway

AUTHORS: Kendra Ford, Jasmine Jones, Danny Basri, Arielle Spurley

OBJECTIVE: Report the observed change in the clinical management of patients experiencing acute vaso-occlusive crises (VOC), before and after the implementation of an evidence-based clinical pathway.

SELF ASSESSMENT QUESTION: What is the recommended route and frequency of administration for opioid analgesia when managing acute VOC?

BACKGROUND: The Hospital Medicine service at Wellstar Kennestone Hospital implemented a sickle cell clinical pathway including an order set and supplemental opioid prescribing guideline in the summer of 2016 in alignment with the 2014 National Heart, Lung, and Blood Institute (NHLBI) recommendations. The order set includes an automatic consult for the clinical pharmacist pain specialist to perform a comprehensive pain assessment and provide recommendations for optimizing the analgesic regimen. Implementation of the pathway was intended to improve adherence to evidence-based guidelines, standardize care, and decrease time to pain control.

METHODOLOGY: A retrospective, single-center review of patients admitted for sickle cell pain crises was conducted to compare time to initiation of NHLBI guideline-recommended parenteral opioid therapy prior to and after implementation of the sickle cell clinical pathway. Secondary objectives included the pharmacist's impact on adherence to the NHLBI guidelines, the time to clinically significant reduction in pain score, consistency of pain control, the safety of the pathway, and the potential cost avoidance associated with implementation of the sickle cell clinical pathway.

RESULTS: Although not statistically significant, there was an improvement in adherence to the primary objective observed in the post-intervention group. The greatest improvement was seen in the number of patients that received scheduled parenteral opioid therapy within 24 hours of admission to the floor, which increased from 50% to 76%.

CONCLUSIONS: Overall, more patients received guideline recommended opioid therapy with the implementation of this order set. There is an opportunity for improvement to increase order set utilization and future work should include identifying and minimizing barriers to order set utilization.

https://drive.google.com/file/d/1eaTdQYJEqbtGctnqQ90_vQqcF2jcmHfe/view?usp=sharing

Presenters: Riley Jackson

TITLE: Task Generation in the EHR for Pharmacist Prioritization to Review Discharging Patients High at Risk of Readmission

AUTHORS: Riley Jackson, April Williams, Carly Steuber

OBJECTIVE: This project will optimize TOC pharmacist resources more effectively by focusing on higher-risk patients to decrease readmission rates.

SELF ASSESSMENT QUESTION: At the conclusion of my presentation, the participant will be able to describe characteristics of patients identified as high at risk of readmission.

BACKGROUND: Transitions of care pharmacists covering discharges are deployed to cover specified nursing units. Optimizing coverage and balancing workload has been attempted based on frequency of discharges from units. TOC does not have enough pharmacist FTEs to provide full coverage to all units nor substitutions if a pharmacist is off. The current design is for another TOC pharmacist to be assigned as on call for the units that are not covered the day that a pharmacist is off. This is in addition to their regular units that they cover. Within each assignment, a pharmacist is tasked with optimizing their own workflow. The pharmacist must choose which patients to review and counsel at their own discretion if there are too many discharges to cover. Evaluating each patient to organize workflow takes substantial time. Other institutions have software to assist with prioritizing workflow for pharmacists assisting with discharging a patient. Some institutions have this as a part of their Cerner production software.

METHODOLOGY: This project will institute a custom rule into Huntsville Hospital's Cerner Millennium production software to identify and alert TOC pharmacists by task generation about patients with atrial fibrillation, acute myocardial infarction, coronary artery bypass graft, chronic kidney disease, chronic obstructive pulmonary disease, diabetes mellitus, heart failure, and/or 2 inpatient/observation encounters within the last 26 weeks will have specific focus.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Payton Tipton

TITLE: Perceptions and Knowledge of Clinical Pharmacy Among Medical Residents in North Carolina

AUTHORS: Payton Tipton, R. Bowers, A. Mittleider, H. O'Brien, E. McClain

OBJECTIVE: Describe the perceptions and knowledge of clinical pharmacy among medical residents in North Carolina.

SELF ASSESSMENT QUESTION: According to medical residents in this survey, pharmacist involvement is important in which of the following services?

BACKGROUND: Limited data exists on the physicians' perceptions of clinical pharmacists in the United States. In North Carolina, pharmacists can enter into collaborative practice agreements with physicians, allowing them to assume responsibility for patient care services that would normally be beyond their scope of practice. However, this type of collaboration will only be successful if each side sees the value that the other provides to the team and knows of the services that they can provide. The purpose of this study is to identify gaps in understanding of clinical pharmacy and opportunities to increase interprofessional collaboration.

METHODOLOGY: This was a descriptive survey cohort study. The primary objective was to describe perceptions of clinical pharmacy services among medical residents. The secondary objectives were to describe the percentage of medical residents that have access to clinical pharmacy services and to compare the knowledge of available clinical pharmacy services by medical residents versus actual services provided as reported by pharmacists.

RESULTS: Forty-one medical residents in North Carolina completed the survey. Of these, 41.5% attended a private medical school with 75.6% having an MD degree. Majority of residents (58.5%) were a PGY3 or higher. Family medicine and emergency medicine residents were the most represented with 26.5% in each. One-hundred percent of residents felt that pharmacists were important or very important in answering drug information questions, while only 25% felt that pharmacists were important in vaccine administration. At least 50% of medical residents were aware of all pharmacy services available except for transitions of care, vaccine administration, and medication cost assistance.

CONCLUSIONS: Medical residents find pharmacist involvement to be most important in answering drug information questions. There is a continued need for education of medical residents on availability of pharmacy services.

Presenters: Morgan Moulton

TITLE: The impact of a hybrid learning model on student performance and perceptions in the pharmacotherapy I course

AUTHORS: Morgan Moulton, Devin Lavender, Russ Palmer, Beth Phillips, Rebecca Stone

OBJECTIVE: Identify the benefits and barriers seen in hybrid learning compared to face-to-face in a Pharm.D. Pharmacotherapy Course.

SELF ASSESSMENT QUESTION: What was one benefit seen in hybrid learning?

BACKGROUND: This purpose of this study was to evaluate the impact of a hybrid learning model on student performance and perception of learning in a second year (P2) Pharmacotherapy course.

METHODOLOGY: Data were evaluated in P2 students who completed traditional face-to-face learning in Fall 2019 (n=131) compared to a hybrid learning model in Fall 2020 (n=142). Exam scores, teammates evaluations, and survey responses, within course and end-of-course, were utilized. Discrete variables were analyzed using a student's t test, while categorical variables were compared using a Mann-Whitney U test. Thematic analysis was applied to all open-ended responses.

RESULTS: There was no difference observed in the average exam score between 2019 and 2020 (80.3 ± 8.2 vs 79.9 ± 8.2 , $p = 0.7$). When face-to-face, students reported an increased ability to actively listen ($U=6262.5$, $z = -2.91$, $p=0.004$), avoid distractions ($U=6238.5$, $z = -2.66$, $p=0.008$), and were more likely to react emotionally to a topic or instruction ($U=6595.5$, $z = -2.00$, $p=0.045$). Identified benefits of hybrid learning (n=65 responses) included flexibility that enhanced the learning environment (coded 34 times), videoconference technology supported communication and interactivity (coded 17 times), and students were able to focus and engage in learning (coded 16 times). Barriers (n = 45 responses) included challenges with the internet or other technology (coded 26 times), and preference for learning in-person (coded 27 times).

CONCLUSIONS: There was no difference in student performance between the learning models. An optimal hybrid model allows for a flexible learning environment with ample opportunity for face-to-face learning.

Presenters: Huy Luu

TITLE: Anticoagulation in Patients with Atrial Fibrillation after Bioprosthetic Valve Surgery

AUTHORS: Huy Luu, PharmD; Erin Puritz, PharmD, BCPS, BCCCP; Ceressa Ward, PharmD, BCPS, BCCCP, BCNSP; Michael Halkos, MD, MSC; David W. Boorman, MS

OBJECTIVE: Assess if DOACs are an appropriate alternative to warfarin in patients with AF after BVRS

SELF ASSESSMENT QUESTION: The incidence of thromboembolic complications and major bleeding events between DOACs and warfarin in patients with AF after BVRS is similar

BACKGROUND: ACC/AHA and CHEST guidelines recommend warfarin as the preferred anticoagulant to prevent thromboembolic complications after bioprosthetic valve replacement surgery (BVRS). Despite direct oral anticoagulants (DOACs) being approved for use in non-valvular atrial fibrillation (AF), data to support their use in patients with AF after BVRS is limited. The purpose of this study is to compare the efficacy and safety of DOACs and warfarin in preventing thromboembolic complications after BVRS in patients with underlying AF.

METHODOLOGY: A retrospective chart review from January 01, 2015 to June 30, 2020 was conducted. Eligible patients were adults who had history of AF prior to admission, received a DOAC or warfarin, and had a bioprosthetic aortic and/or mitral valve replacement. The primary outcome was the incidence of thromboembolic events at 30 day follow up. The safety outcome was the incidence of major bleeding at 30 day follow up.

RESULTS: Seventy six patients were included in the study with 53 patients in warfarin group and 23 patients in the DOAC group. At 30 days, 6 patients (11%) in the warfarin group experienced thromboembolic events compared to 2 patients (9%) in the DOAC group. At 30 days, major bleeding occurred in 10 patients (19%) in the warfarin treatment arm compared to 3 patients (13%) in the DOAC treatment arm. Of note, the majority of bleeding events occurred in the immediate postoperative period (53%).

CONCLUSIONS: The incidence of thromboembolic and major bleeding events in patients with a history of AF receiving either a DOAC or warfarin after BVRS appeared to be similar. Future large randomized studies are necessary to confirm that DOACs are similar to warfarin in preventing thromboembolic events in patients with concomitant AF immediately after BVRS.

Presenters: Michael Scott

TITLE: Analysis of Tranexamic Acid Utilization in Emergency Department Initiated Massive Transfusion

AUTHORS: Michael Scott, Jennifer Mando-Vandrick, Wennie Huang

OBJECTIVE: To describe risk factors contributing to TXA omission during MTP in the ED.

SELF ASSESSMENT QUESTION: Which of the following is the appropriate dosing for TXA in trauma? a)2 g over 10 minutes b)1 g over 24 hours c)1 g over 10 minutes followed by 1 g over 8 hours d)1 g over 10 minutes followed by 1 g over 24 hours

BACKGROUND: Tranexamic acid (TXA) is a synthetic lysine derivative that exerts its antifibrinolytic action by binding the lysine receptor site on plasminogen. This results in the inability of plasmin to degrade fibrin, thus inhibiting fibrinolysis. Studies have demonstrated that administering TXA (1 gram bolus over 10 minutes followed by 1 gram infusion over eight hours) within three hours of injury to trauma patients with or at risk for significant bleeding reduces the risk of death from hemorrhage.

METHODOLOGY: The primary outcome of this single-center retrospective cohort study is to evaluate risk factors for the omission of TXA during MTP initiated in the ED. Risk factors to be assessed include utilization of the TXA MTP orderset, ED pharmacist presence, ED length of stay, ED disposition location, mechanism of injury, Glasgow Coma Scale (GCS) score upon ED arrival, and trauma level (I, II, or III). Secondary objectives are to determine the effect of TXA administration during MTP on intensive care unit length of stay, hospital length of stay, mortality, and vascular occlusive events.

RESULTS: In progress

CONCLUSIONS: In progress

R Evaluation of quetiapine therapy on difficulty of extubation among mechanically ventilated ICU patients receiving dexmedetomidine for sedation

Room D

Presenters: Sarah Vines

TITLE: Evaluation of quetiapine therapy on difficulty of extubation among mechanically ventilated ICU patients receiving dexmedetomidine for sedation

AUTHORS: Sarah E. Vines, PharmD; J. Luke Britton, PharmD, BCPS; Kelly G. Gandy, PharmD, MPH, BCPS

OBJECTIVE: Describe the role of quetiapine in mechanical ventilator weaning among difficult to wean patients

SELF ASSESSMENT QUESTION: True or false: Quetiapine may be useful to decrease time of mechanical ventilation in difficult to wean patients.

BACKGROUND: To determine the effect of quetiapine on ease of extubation in mechanically ventilated ICU patients receiving dexmedetomidine for sedation.

METHODOLOGY: This study is an IRB approved, retrospective chart review. Study population was identified from patients aged 19 and older admitted to Jackson Hospital ICU between January 1, 2019 and December 31, 2019, who received dexmedetomidine for sedation while ventilated. Patients were determined to have simple or complicated wean from mechanical ventilation based on time of extubation after first successful spontaneous breathing trial. Outcomes were evaluated using data-appropriate statistical analyses.

RESULTS: Eighty-one patients were included where 15 patients received dexmedetomidine plus quetiapine and sixty-six received dexmedetomidine alone. Among patients receiving quetiapine, a statistically significant difference was observed with 53.3% meeting criteria for simple ventilator wean compared to 19.7% in the non-quetiapine group. A statistically significant difference was also observed when comparing rates of delirium between the two groups. Other secondary outcomes that approached statistical significance included length of stay, time of ventilation, and reintubation rates.

CONCLUSIONS: Quetiapine may be useful to facilitate ventilator weaning among patients that are difficult to wean with dexmedetomidine alone. It is possible that managing underlying delirium with quetiapine, but further investigation is required to determine definite correlation.

R Impact of an enhanced recovery after surgery (ERAS) protocol on postoperative outcomes in cardiac surgery patients

Room C

Presenters: Stephanie Bills

TITLE: Impact of an enhanced recovery after surgery (ERAS) protocol on postoperative outcomes in cardiac surgery patients

AUTHORS: Stephanie Bills, Brittany Wills, Samara Boyd, Joseph Elbeery

OBJECTIVE: Identify if utilization of an ERAS protocol decreases the use of postoperative opioids following cardiac surgery.

SELF ASSESSMENT QUESTION: What is the benefit of utilizing an ERAS protocol in cardiac surgery patients?

BACKGROUND: Enhanced recovery after surgery (ERAS) protocols are multimodal perioperative care pathways designed to achieve early recovery after surgical procedures. ERAS protocols have proved to shorten recovery time, and lower opioid utilization and postoperative complication rates, all while being cost-effective. The evidence to support the use of ERAS protocols spans various patient populations, however, minimal data exists in post-operative cardiac surgery patients.

METHODOLOGY: This observational cohort study compared adult patients receiving post-operative care after on-pump coronary artery bypass (CABG) or valve procedures who received an ERAS protocol containing acetaminophen, gabapentin, and methocarbamol to historical controls. The primary objective of this study was to determine if the utilization of an ERAS protocol decreases postoperative opioid use during the first 72 hours following cardiac surgery. Secondary objectives included total postoperative and intensive care unit length of stay, average pain scores 72-hours post-operatively, and incidence of opioid-related complications.

RESULTS: There was a trend towards a reduction in opioid use within 72 hours in the ERAS protocol group (n=133) compared to the historical control group (n=185). Pain control was similar between groups. Opioid-related complications occurred more in the control group regarding constipation (ERAS 47.4% vs control 60.5%; p<0.05) and respiratory depression (ERAS 57.1% vs control 62.7%; p<0.05).

CONCLUSIONS: Use of an ERAS protocol shows promising trend toward less opioid use in cardiac surgery patients. ERAS protocol group achieved similar, and slightly better pain control compared to the historic control group. Post-operative length of stay not impacted. Lower rates of opioid-related adverse events (respiratory depression and constipation).

Link to presentation: <https://youtu.be/nG2Sxy03Vzw>

I **Dalbavancin Compared to Standard of Care for Outpatient treatment of Methicillin-Resistant Staphylococcus aureus Infections in People Who Inject Drugs** Room H

Presenters: Mary Beth Bryant

TITLE: Dalbavancin Compared to Standard of Care for Outpatient treatment of Methicillin-Resistant Staphylococcus aureus Infections in People Who Inject Drugs

AUTHORS: Bryant ME, Yeager SD, Wright LR, Shorman M, Veve MP

OBJECTIVE: Describe the role of dalbavancin in the treatment of invasive MRSA infections in PWID.

SELF ASSESSMENT QUESTION: How does dalbavancin compare to outpatient vancomycin/daptomycin in PWID with MRSA infections in terms of 90-day infection related readmission?

BACKGROUND: People who inject drugs (PWID) are at risk for developing invasive methicillin-resistant Staphylococcus aureus (MRSA) infections. The use of prolonged outpatient intravenous antibiotics is controversial in PWID due to the risk of catheter manipulation and decreased adherence. Dalbavancin may have a role in treating PWID with MRSA infections, but comparative data are limited. This study compared dalbavancin to standard of care (SOC), or daptomycin and vancomycin, for invasive MRSA infections in PWID.

METHODOLOGY: Retrospective cohort performed among adult hospitalized patients with confirmed or suspected MRSA infections treated with outpatient dalbavancin or SOC from 1/2011-11/2020. Patients with a history of or active injection drug use were included. Primary outcome was a composite of 90-day infection-related readmission (IRR), including clinical worsening on treatment, infection relapse following treatment completion, or treatment-related adverse event requiring rehospitalization.

RESULTS: 161 patients included: 69 (43%) dalbavancin and 92 (57%) SOC. The most common infection types were: bone/joint (41%), endocarditis (37%), other bloodstream infections (13%), and skin/abscess (9%). Endocarditis was more common in patients who received SOC (42% vs. 29%, P=0.08). 90-day IRR was less frequent in patients who received dalbavancin compared to SOC (15% vs. 33%, P=0.008). While there were no differences in clinical worsening or infection relapse, patients who received SOC were more likely to experience a treatment-related adverse event requiring hospitalization (1% dalbavancin vs. 19% SOC, P=0.001). Of the 17 treatment-related adverse events requiring readmission in the SOC group, 12 were related to invasive line complications.

CONCLUSIONS: Dalbavancin had similar efficacy to SOC in treating confirmed or suspected invasive infections due to MRSA in PWID, but was less frequently associated with adverse events requiring rehospitalization.

<https://youtu.be/WHK-qNDRYqg>

I **Driving Value-Based Care Utilizing Outcomes and Antibiotic Use Data** Room I

Presenters: Judy Braich

TITLE: Driving Value-Based Care Utilizing Outcomes and Antibiotic Use Data

AUTHORS: Judy Braich, Joy Peterson, Rina Nath, Danny Branstetter, Nicole Eubanks

OBJECTIVE: List potential outcomes that may guide providers when prescribing antimicrobials.

SELF ASSESSMENT QUESTION: Name one outcome providers can use to compare their prescribing habits to others within the health system.

BACKGROUND: The overuse and misuse of antibiotics has led to increasing antimicrobial resistance, rising healthcare costs and an increase in healthcare associated infections. Wellstar Health System already utilizes a dashboard to track overall antibiotic use, however opportunity exists to provide more meaningful and holistic antibiotic use data. The purpose of this project is to develop a system wide, real time, anti-infective dashboard that tracks provider spend and other quality metrics on common and costly infectious disease diagnosis related groups (DRGs).

METHODOLOGY: This was a retrospective quality improvement project that assessed data within the previous fiscal year. With the assistance of Wellstar's EI and IT departments, a trial dashboard was built for review. The dashboard included data from all Wellstar Health System Hospitals. Common infectious disease DRGs were explored and narrowed based on the accuracy of the data retrieved. Additional DRGs will be included once the dashboard is implemented and necessary adjustments are made. Outcomes of interest included duration of therapy, pharmacy and laboratory spend, length of stay, hospital readmissions and 30-day mortality.

RESULTS: After the final data points and outcomes of interest were determined, the idea was presented to key stakeholders within WHS. Stakeholders provided positive feedback on this quality improvement initiative. The Wellstar Business Intelligence team is currently in the process of developing the final product in Tableau®. The final dashboard is expected to be completed in 2-3 months.

CONCLUSIONS: The implementation of a system wide, real time, anti-infective dashboard will drive value based care. Meaningful data involves the use of real time quality metrics with the ability to compare Wellstar facilities and physician specialties. Comparison of these outcomes will encourage providers to practice greater antimicrobial stewardship while maintaining high level quality care.

I Evaluation of antibiotic duration of therapy for ventilator-associated tracheitis in children with pre-existing tracheostomies Room J

Presenters: Victoria Urban

Link to Presentation: <https://vimeo.com/538909035>

Evaluation of antibiotic duration of therapy for ventilator-associated tracheitis in children with pre-existing tracheostomies

Victoria Urban, Kelley Norris, Christopher Campbell

Augusta University Medical Center/ University of Georgia College of Pharmacy

Objectives: This study aims to describe ventilator associated tracheitis (VAT) in pediatric patients with pre-existing tracheostomies and determine the impact of treating VAT for 7 days or less, compared to 8 days or more, on incidence of ventilator associated pneumonia (VAP).

Patients and Methods: This is a retrospective chart review of pediatric patients with pre-existing tracheostomies admitted to the Children's Hospital of Georgia to be treated for the first time for VAT between January 1, 2007 and February 21, 2021. Patients were divided into those who received 7 days or less, compared to 8 days or more, of antibiotics. Primary outcome is incidence of VAP. Secondary outcomes include tracheostomy cultures, antibiotic choice, and length of stay (LOS).

Results: Thirty-nine patients were included. There was no difference in the development in VAP between shorter and longer treatment durations (0 vs 1, $p = 1$). Patients who developed *Pseudomonas aeruginosa* VAT were likely to have a previous culture of *P. aeruginosa* ($p = 0.003$), have a tracheostomy for longer ($p = 0.011$), and be older than 1 year of age ($p = 0.0002$). Empiric treatment with *P. aeruginosa* was associated with a previous culture growing *P. aeruginosa* ($p = 0.003$). Twenty-six percent of patients growing *P. aeruginosa* were not covered by empiric therapy.

Conclusions: Due to the low incidence of VAP in both groups, no difference could be determined. Results suggest empiric treatment of VAT should be based on previous culture results. For a first hospitalization treating VAT, empiric coverages should include coverage for *P. aeruginosa*.

M Evaluation of a Pediatric Protocol on Venous Thromboembolism and Timing of Anti-Xa Levels Room F

Presenters: Clayton Rosenbaum

TITLE: Evaluation of a Pediatric Protocol on Venous Thromboembolism and Timing of Anti-Xa Levels

AUTHORS: Clayton A Rosenbaum, Heather Hughes, Alex Ewing

OBJECTIVE: Identify the possible role of intervention pharmacist may play in a newly adapted pediatric risk scoring tool for the initiation of venous thromboembolism prophylaxis

SELF ASSESSMENT QUESTION: When should anti-Xa levels be drawn for patients on a Q12H enoxaparin dosing regimen?

BACKGROUND: Prisma Health – Upstate has created a risk scoring tool to evaluate venous thromboembolism (VTE) risk in the pediatric population that was implemented in August 2020. Even though the clinical incidence of VTE in the pediatric population is low, there are many times that processes surrounding treatment are improperly done. This protocol was designed to also help with the appropriate collection of anti-Xa levels and guideline-based dosing of enoxaparin. The conclusions from this study should help to determine how pharmacists may be integrated into the protocol firing process to allow for meaningful collaboration between pharmacy and physicians in the matter of initiating and monitoring VTE prophylaxis in pediatric patients.

METHODOLOGY: This study is a single-center, retrospective, pre-and-post analysis evaluating the utility of a newly adapted pediatric protocol for the initiation of venous thromboembolism (VTE) prophylaxis. We identified pediatric patients that received VTE prophylaxis between February 2020 – July 2020 and August 2020 – December 2020 when the protocol was created. Our primary outcomes were appropriate timing of anti-Xa levels and compliance to protocol. Secondary outcomes included amount of anti-Xa levels collected, anti-Xa level in goal %, physician refusal %, weight and age-appropriate dosing, and bleeding event occurrence.

RESULTS: The amount of anti-Xa levels collected within the protocol time frame in the pre-and-post analysis was 9% vs 23% (p -value 0.167) The median number of anti-Xa levels was 4 vs 1 respectively (p -value 0.006). The protocol fired 5144 times, accepted 99 times and used in 11 patients.

CONCLUSIONS: Protocol implementation decreased the number of anti-Xa levels collected. Physician fatigue could be the main cause of the high protocol override percentage. Pharmacy was responsible for 78% of anti-Xa levels collected. The protocol implementation did not produce more accurate timing of anti-Xa level collection.

<https://youtu.be/rPQfrapk68U>

O Evaluation of healthcare-associated infections in patients with hematologic malignancies and stem cell transplantation during the COVID-19 pandemic

Presenters: Laura Bobbitt

TITLE: Evaluation of healthcare-associated infections in patients with hematologic malignancies and stem cell transplantation during the COVID-19 pandemic

AUTHORS: Laura Bobbitt, Katie Gatwood

OBJECTIVE: Describe changes in healthcare-associated infection rates during the COVID-19 pandemic.

SELF ASSESSMENT QUESTION: (true/false) Did the incidence of hospital-acquired infections decrease during the COVID-19 pandemic?

BACKGROUND: Due to the COVID-19 pandemic, there has been an escalation of hygiene practices, both in the hospital and the community, such as universal masking, increased hand hygiene, and social distancing. Malignant hematology and stem cell transplant patients are at an increased risk of infections which can have significant morbidity and mortality in this population. The purpose of this study was to evaluate whether the rates of healthcare-associated infections changed during the COVID-19 pandemic.

METHODOLOGY: We performed a retrospective cohort study of adult malignant hematology and stem cell transplant patients admitted between March 1, 2019 through July 31, 2019 and March 1, 2020 through July 31, 2020. The 2019 cohort served as the contemporary, pre-COVID-19 comparator arm and was compared to the 2020 cohort in which increased hygiene practices were in place. The primary outcome of the study was the incidence of catheter-associated urinary tract infections, central line-associated bloodstream infections, and *Clostridioides difficile* infections. Secondary outcomes included infection-related mortality, number of admissions for neutropenic fever, change in rate of identifiable cause of neutropenic fever, and hospital length of stay.

RESULTS: In Progress

CONCLUSIONS: In Progress

<https://youtu.be/Q-pnlgewnrA>

A Seroconversion rate of Heplisav-B vaccine in patients with end stage renal disease (ESRD)

Presenters: Lindsey Lindsey

TITLE: Seroconversion rate of Heplisav-B vaccine in patients with end stage renal disease (ESRD)

AUTHORS: Lindsey Lindsey, Conner Walsh, Kathryn McDainel, Ted Walton, Sarah Johnson

OBJECTIVE: List potential benefits of Heplisav-B vaccine in ESRD patients.

SELF ASSESSMENT QUESTION: What is the rate of seroconversion for Heplisav-B vaccine in patients with ESRD?

BACKGROUND: Hemodialysis (HD) patients have increased risk for contracting hepatitis B infection through exposure to blood products, shared HD equipment, frequent skin breaching, and overall immunodeficiency. Traditional hepatitis-B (HBV) vaccines such as Recombivax-HB and Engerix-B have an approximate efficacy of 70 – 75 % in this patient population. A new recombinant HBV vaccination, Heplisav-B, does not have FDA approval for special populations, specifically patients with ESRD on HD. However, improved seroconversion rates in other population with Heplisav-B poses many potential benefits to HD patients making it of interest in this patient population.

METHODOLOGY: Heplisav-B was administered as a 3 dose course, each vaccine was administered at minimum 4 weeks apart with titers drawn 4 ± 2 weeks post vaccination series. Patients with ESRD who are HBV vaccine naïve or have a negative surface antigen test, and who are indicated for the HBV vaccination were eligible for the study. Patients were excluded if they deviated from the dosing schedule, had a history of seroconversion, < 18 years of age, pregnant, or incarcerated. The primary outcome was the percent of patients who seroconverted with an anti-HBs titer > 10 IU/mL 4 weeks after the last dose of Heplisav-B vaccine. Secondary outcomes were seroconversion failure stratified by diabetes, use of immunosuppressive therapy, and number of weekly dialysis sessions. The goal is to discern the seroconversion rates in ESRD patients on HD and the impact of immunocompromising states on conversion rates.

RESULTS: Thirty-two patients received the initial dose of vaccine between January 2020 and May 2020 and 24 patients were included. This study showed 84% seroconversion in the 24 patients who completed the vaccination series.

CONCLUSIONS: Heplisav-B had increased seroconversion rates in patients with ESRD compared to conversion rates of Recombivax-HB and Engerix-B.

Presentation link: https://drive.google.com/file/d/1tRVYIPak_vVBjUx7dGAYf3eTXD8zUuFa/view?usp=sharing

B Clinical and Financial Impact of Pharmacists through the Implementation of a Medicare Annual Wellness Visit Service

Room K

Presenters: Aneet Patel

TITLE: Clinical and Financial Impact of Pharmacists through the Implementation of a Medicare Annual Wellness Visit Service

AUTHORS: Aneet Patel, Jamie Coates, Amanda Stankowitz, Alexander Tunnell

OBJECTIVE: Determine the clinical and financial impact of pharmacists in an outpatient clinic through the implementation of a Medicare Annual Wellness Visit service (AWV).

SELF ASSESSMENT QUESTION: Can a pharmacist-led Medicare AWV service impact clinical and financial outcomes in an outpatient clinic?

BACKGROUND: Medicare AWVs are offered at no cost to eligible Medicare beneficiaries to promote general wellness and improve utilization of preventative measures. Prior studies have shown financial impact and clinical interventions made by pharmacists. However, opportunities exist to understand the impact AWVs may have on hospital visits.

Therefore, the purpose of this project is to determine the clinical and financial impact of pharmacists in an outpatient clinic through the implementation of a Medicare AWV service.

METHODOLOGY: A pharmacist-led AWV service was implemented at Anderson Health Center (AHC). The study period includes patients seen for AWVs from September 1st, 2020, through August 31st, 2021. Patients who are age 65 years or older and are referred by the AHC Resident Medicine Clinic will be included in the study. Patients will be excluded if they have not been seen by an AHC provider within two years prior to referral or if they are admitted to the emergency center or hospital on the day of their AWV. The primary outcome is to determine the rate of hospital admissions and emergency center visits pre- and post-implementation of the Medicare AWV service. To assess the impact of this service, hospital admissions will be monitored one year prior to and one year after the date of the AWV. Secondary outcomes include the quantity and types of interventions made as well as the total revenue generated from the implementation of a pharmacist-led AWV service.

RESULTS: In Progress. Final results anticipated September 2022.

CONCLUSIONS: In Progress.

PRESENTATION LINK: <https://youtu.be/gJdGag9EIIU>

B Stimulant Misuse in Pregnant Patients at a Rural Perinatal Substance Use Program

Room J

Presenters: Olivia Caron

TITLE: Stimulant Misuse in Pregnant Patients at a Rural Perinatal Substance Use Program

AUTHORS: Olivia A. Caron, PharmD, Melinda Ramage, MSN, FNP-BC, CARN-AP, and Shelley L. Galvin, MA

OBJECTIVE: To compare Project CARA clients with versus without StMU on characteristics, engagement in integrated care, and birth outcomes.

SELF ASSESSMENT QUESTION: What is the current trend of stimulant misuse among pregnant women?

BACKGROUND: In 2019, nearly 1,000 pregnant women misused methamphetamine, 3,000 misused cocaine, and 7,000 misused prescription stimulants. This marks a significant rise in reported stimulant misuse since 2016. The CDC reports that 32.6% of drug overdoses involved opioids and stimulants, and 12.7% involved only stimulants. Currently, treatment revolves around psychotherapy as there is no FDA approved pharmacotherapy.

Project CARA, Care that advocates Respect, Resilience, and Recovery for All, is an obstetrician-gynecologist office housed at Mountain Area Health Education Center (MAHEC) in Western North Carolina. MAHEC first offered integrated substance use treatment services within obstetrical visits in the late 1990s and has grown since 2014 to provide comprehensive perinatal substance use care using current evidence-based practices. Project CARA offers services to pregnant and postpartum patients with any substance use disorder, but has primarily treated patients affected by opioid use disorder.

The intention of this project is to assess if there has been an increase in stimulant misuse and dependence (StMU) over the 5 year evolution of the program, and if so, are there differences in this patient population. Differences in demographics, engagement in care, and birth outcomes were assessed.

METHODOLOGY: Patients identified with StMU (self-report, UDS+, documented Hx) were compared to those without StMU via t-test, chi square, or Fisher exact tests in a secondary analysis of clinical program data. The identified patients were engaged in care at Project CARA from 2014 through 2018.

RESULTS: Identification of StMU among pregnant women increased from 18.6% to 38.8% over the past five years. The 29.0% (172/594) of women with StMU were similar in age, race/ethnicity, and parity compared to other patients ($p>0.05$). They were more likely to have Medicaid, use tobacco, have concurrent infectious disease, and comorbid psychiatric disorders. Among the patients with OUD, those with concurrent StMU were less likely to be on OUD medication (44.6% v. 91.4%, $p=0.040$) though they were equally likely to attend expected integrated care visits (66.5% v. 66.8%, $p=0.933$). They were more likely to seek adjunctive SUD treatment (72.7% v. 52.4%, $p=0.001$).

R Impact of a Clinical Decision Support System (CDSS) Alert on Medication Administration Discrepancies in the Emergency Department Room B

Presenters: Elizabeth Pollard

TITLE: Impact of a Clinical Decision Support System (CDSS) Alert on Medication Administration Discrepancies in the Emergency Department

AUTHORS: Elizabeth Pollard, Tanner Shields, Brad Crane

OBJECTIVE: At the conclusion of my presentation, the participant will be able to recognize the potential impact of a CDSS alert in the emergency department.

SELF ASSESSMENT QUESTION: What are some examples of potential benefits of utilizing a CDSS alert in the emergency department?

BACKGROUND: Based on previous analyses in the emergency department (ED) at Blount Memorial Hospital (BMH), it is estimated 2.5 of every 100 medications removed from the automated dispensing machines (ADM) do not have documentation of being administered or returned to the ADM. This suggests medications are either administered without documentation, wasted, incorrectly removed under the wrong patient, or potentially diverted. BMH implemented a Clinical Decision Support System (CDSS) in August of 2020. A CDSS alert was built to identify when medications are removed from an ED ADM due to either (1) no documentation of administration within two hours or (2) no return to the ADM within two hours (discrepancy). A CDSS alert could reduce discrepancies, resulting in improved medical record accuracy and less missed medication charges.

METHODOLOGY: This study was an IRB approved retrospective cohort analysis. Patients were included when medications removed from an ED ADM triggered a CDSS alert due to either (1) no documentation of administration within two hours or (2) no return to the ADM within two hours. Patients were excluded if the medication was documented as administered after two hours, returned to an ADM after two hours, documented as waste, presumed waste after investigation, removed under the wrong patient, removed as the wrong dosage form, or if the outcome was unable to be determined. Administration discrepancy rates and financial impact were compared before and after an intervention (CDSS alert and nurse education) was implemented.

RESULTS: The baseline administration discrepancy rate was found to be 0.64 per 100 medications removed resulting in an estimated \$23,000-\$52,000 in missed charges per year. Post-intervention data collection is still in progress.

CONCLUSIONS: In progress.

<https://tennessee.zoom.us/rec/share/3jIDrL2XyVvKgNBqxIAho2ejC6xYZ5b5hCkSRJGFGk5BHdtJiJXbUrRAYIr3ndoQ.LyKnRB1TtstartTime=1618832782000>

R Impact of nursing driven replacement protocol vs standard practice on electrolyte replacement time Room D

Presenters: Margaret Hodges

TITLE: Impact of nursing driven replacement protocol vs standard practice on electrolyte replacement time

AUTHORS: Margaret Hodges, PharmD; Ashley Beckwith, PharmD; Drew Kessell, PharmD, MBA, MS

OBJECTIVE: To determine if a nursing driven electrolyte replacement protocol reduces the time to electrolyte replacement in critically ill patients.

SELF ASSESSMENT QUESTION: Does a nursing driven protocol impact the time to electrolyte replacement in critically ill patients?

BACKGROUND: Patients admitted to the intensive care unit (ICU) frequently require electrolyte replacement. Following an order, a nursing driven electrolyte replacement based on pre-defined lab parameters is utilized by many hospitals to expedite replacement and decrease call volume to providers.

METHODOLOGY: A retrospective observational study will be conducted to assess the time to electrolyte replacement in patients admitted to the Moore Regional Hospital ICUs between October 1, 2019 – December 31, 2019. Patients will be placed into two groups based upon presence or absence of ordered electrolyte protocol. Patients requiring magnesium, phosphorus or potassium replacement will be included. Data elements to be evaluated include age, gender, time specimen drawn and resulted, measured serum magnesium, phosphorus or potassium, time medication ordered and administered, replacement dose, potassium product ordered, dispense location, and ICU length of stay prior to protocol order. Patients with renal dysfunction, receiving dialysis, DKA or rhabdomyolysis will be excluded, as well as, those who are pregnant or under the age of 18.

RESULTS: In Progress

CONCLUSIONS: In Progress

R Incidence of thrombotic complications related to weight-based dosing of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients

Room C

Presenters: Caitlyn Whitaker

TITLE: Incidence of thrombotic complications related to weight-based dosing of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients

AUTHORS: Caitlyn Whitaker, PharmD, Amanda Mckinney, PharmD, BCCCP, Reagan Bollig, MD, Nathan Hieb, MD, R. Frank Roberts, Jr., MD, FACS, A. Shaun Rowe, Pharm.D., M.S, BCCCP, FNCS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the potential adverse effects of utilizing aPCC in patients requiring DOAC reversal.

SELF ASSESSMENT QUESTION: Which of the following is a risk factor for the development of a thrombotic event following aPCC administration? a. Doses of > 200u/kg/day b. Sepsis c. Crush injury d. Advanced atherosclerotic disease e. All of the above

BACKGROUND: Factor eight inhibitor bypassing activity (aPCC) is recommended as a non-specific reversal agent for direct oral anticoagulants (DOACs) according to the 2017 American College of Cardiology (ACC) guidelines for reversal of anticoagulation. aPCC carries a black box warning for thrombotic events such as stroke, pulmonary embolism, deep vein thrombosis, and myocardial infarction, particularly at high doses. The purpose of this investigation is to determine the incidence of thrombotic complications with weight-based doses of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients, in whom higher doses of aPCC are used.

METHODOLOGY: This is a retrospective, single-center, cohort investigation. Patients who received a weight-based dose of Factor eight inhibitor bypassing activity (aPCC) for direct oral anticoagulant (DOAC) reversal between January 1, 2015 and December 31, 2020 were included. Patients were excluded if they are less than 18 years of age, their aPCC dose or administration was not properly documented, or if they received aPCC for an indication other than DOAC reversal. Patients were grouped by BMI as obese (BMI \geq 30kg/m²) or non-obese (BMI < 30kg/m²) for analysis. The primary outcome of this investigation was occurrence of thrombotic complications (venous thromboembolism [VTE], myocardial infarction [MI], stroke) documented in the medical record at any point during hospitalization after administration of aPCC. Secondary outcomes include in-hospital mortality, ICU and hospital length of stay, and incidence of bleeding complications.

RESULTS: In progress.

CONCLUSIONS: In progress.

https://www.youtube.com/watch?v=Tjwwav_3S8I&feature=youtu.be

I Evaluating the real world use of dalbavancin for off-label indications

Room H

Presenters: Katherine Taylor

TITLE: Evaluating the real world use of dalbavancin for off-label indications

AUTHORS: Katherine Taylor, Jim Johnson, John Williamson, Tyler Stone, Zach Gruss, Jim Beardsley

OBJECTIVE: Describe the effectiveness of dalbavancin for off-label indications.

SELF ASSESSMENT QUESTION: Is dalbavancin an appropriate treatment option for certain off-label indications?

BACKGROUND: The purpose of this study is to evaluate the use of dalbavancin for off-label indications at Wake Forest Baptist Health.

METHODOLOGY: This study is a single health system, retrospective, observational study. Adult patients who received dalbavancin for an off-label indication from January 2018 to January 2020 will be included. Patients who are pregnant or have a concomitant infection caused by a pathogen not covered by dalbavancin will be excluded. The primary outcome is clinical success at 90 days defined as no need for additional antibiotics (excluding suppression therapy) or surgical intervention following the last dose of dalbavancin and no positive cultures associated with the dalbavancin-targeted infection growing the same organism(s) as initial cultures. Secondary outcomes include safety (nephrotoxicity, hepatotoxicity, antibiotic-related reactions, and serious adverse effects) and economic impact related to hospital length of stay and antibiotic expenditures.

RESULTS: A total of 50 patients met inclusion criteria. The primary outcome occurred in 87% of patients. No nephrotoxicity or hepatotoxicity was noted. Additionally, it was estimated that there were 1,078 institutional days saved by using dalbavancin instead of the standard of care.

CONCLUSIONS: Dalbavancin was associated with a reasonable success rate with minimal side effects for the treatment of various off-label indications. Additionally, Dalbavancin has the potential to reduce cost when compared to the standard of care.

VIDEO LINK: <https://youtu.be/ApIQRX0PLZY>

I **IMPACT OF TRANSITIONING IV CEFTRIAXONE TO AN ORAL ANTIBIOTIC IN THE TREATMENT OF URINARY TRACT INFECTIONS IN THE INPATIENT SETTING**

Room I

Presenters: Kelsey Rensing

TITLE: Impact of transitioning IV ceftriaxone to an oral antibiotic in the treatment of urinary tract infections in the inpatient setting

AUTHORS: Kelsey Rensing, PharmD, Joseph Crosby, PhD, RPh, Geneen Gibson, PharmD, MS, BCPS (AQ-ID), Maggie McCarty, PharmD candidate, Emilee Robertson, PharmD, BCPS

OBJECTIVE: Identify the clinical outcomes associated with a transition from IV ceftriaxone to an oral antibiotic.

SELF ASSESSMENT QUESTION: What is the most common reason for a patient to not be switched from IV ceftriaxone to an oral antibiotic?

BACKGROUND: To determine if the hospital length of stay was reduced in those patients with a transition of antibiotic therapy from intravenous (IV) ceftriaxone to an oral antibiotic in adult patients with urinary tract infections.

METHODOLOGY: A computer-generated list identified adult patients admitted to St Joseph's and Candler hospitals diagnosed with an ICD-10 code indicating UTI diagnosis initially treated with IV ceftriaxone. Patients were excluded for: inability to receive oral therapy at 48 hours, antibiotic for a source of infection other than UTI, pregnancy, three or more organisms present in urine culture. Treatment outcomes were evaluated if the patient was able to be switched from an IV to oral antibiotic while inpatient. Length of stay, length of antibiotic treatment, positive bacterial culture, presence or urinary catheter and eligibility for existing IV to oral transition criteria were recorded.

RESULTS: The computer generated list identified 101 patients who were given intravenous ceftriaxone for a urinary tract infection over a five-year span, and only 27 met our inclusion/exclusion criteria. Two out of the 27 patients were switched from intravenous ceftriaxone to an oral antibiotic. Due to this small sample size, we were unable to determine any link between length of stay and the switch from intravenous to oral antibiotics.

CONCLUSIONS: Further studies are needed to evaluate the relationship between transitioning from intravenous to oral antibiotics for the treatment of urinary tract infections in the inpatient setting. We observed that different methods of finding patients who met our inclusion criteria may have been beneficial in obtaining a larger sample size. A retrospective analysis was completed to determine which patients could have been transitioned to an oral antibiotic, and what the most appropriate oral antibiotic choice would have been based on the IDSA guidelines and patient specific factors. Of the 27 patients in our study, 19 could have been switched to oral antibiotic therapy.

Presentation link: <https://youtu.be/vWnfSv5-vgY>

L **A Comparison of Sodium Zirconium Cyclosilicate and Sodium Polystyrene Sulfonate in Adult, Hospitalized Patients with Hyperkalemia**

Room E

Presenters: Taylor Teshon

TITLE: A Comparison of Sodium Zirconium Cyclosilicate and Sodium Polystyrene Sulfonate in Adult, Hospitalized Patients with Hyperkalemia

AUTHORS: Taylor R. Teshon, Hannah M Young, Amanda S. Moyer

OBJECTIVE: To compare the efficacy of sodium zirconium cyclosilicate (SZC) and sodium polystyrene sulfonate (SPS) in adult, hospitalized patients with hyperkalemia.

SELF ASSESSMENT QUESTION: Was SZC more effective than SPS in achieving normokalemia in the treatment of acute hyperkalemia in this study?

BACKGROUND: SPS and SZC are potassium-binding agents with different cation-binding capabilities and onsets of action. There is no data directly comparing these agents. The purpose of this study was to determine if SZC lowers serum potassium levels more effectively than SPS in the treatment of acute hyperkalemia.

METHODOLOGY: A retrospective study was conducted among adult, hospitalized patients with acute hyperkalemia at Prisma Health Richland. Adult patients with hyperkalemia ($K > 5.2$ mEq/L) who received a study agent from September 2018 through August 2020 were included. Patients were mainly excluded if they were on renal replacement therapy; an insulin, bicarbonate, or loop diuretic continuous infusion; or chronic SZC/SPS. The primary objective was to determine if there was a difference in the number of patients who achieved normokalemia when comparing patients treated with SZC or SPS at 24 hours after drug administration. Secondary objectives included comparisons of absolute serum potassium reduction and the number of patients with life-threatening hyperkalemia ($K > 6.5$ mEq/L) who achieved normokalemia.

RESULTS: There were 71 patients included in the SZC group and 96 in the SPS group. There was no difference in the primary outcome, with 66.2% of patients in the SZC group and 72.9% of the SPS group achieving normokalemia ($p=0.349$). There was no difference in the average absolute reduction in serum K between SZC and SPS (0.8 mEq/L in both groups, $p=0.5$), nor was there a difference in the number of patients that achieved normokalemia in life-threatening hyperkalemia between SZC and SPS (33.3% vs 60%, $p=0.608$). A subgroup analysis of the primary endpoint showed that SPS was significantly better than SZC when used without a potassium shifting agent or as the only potassium reducing agent.

CONCLUSIONS: There was no difference in the efficacy of SZC and SPS when used in a multimodal treatment strategy for the treatment of acute hyperkalemia in this study.

Presenters: Sherwyn Tenia

TITLE: Variance analysis of smart pump settings vs EHR documentation in a non-integrated environment

AUTHORS: Sherwyn Tenia, Terry Bosen, Diana Mulherin, Joshua Sellers

OBJECTIVE: Explain the limitations and error potential associated with nursing staff manually programming smart pumps and manually documenting in the EHR.

SELF ASSESSMENT QUESTION: How does manual documentation within the EHR compare to data generated by smart pumps?

BACKGROUND: Intravenous medications are associated with up to 56% of all medication errors. Technologies such as barcode-assisted medication administration and infusion pumps (i.e., smart pumps) are utilized in most health systems across the United States to minimize the number of errors observed with intravenous medications. Smart pump technology allows for safeguards such as limiting the maximum rate at which a medication can be infused, preventing the delivery of incorrect medication concentrations, and providing detailed information of how much medication a patient has received. At Vanderbilt University Adult Hospital (VUAH), we currently rely on nursing staff to manually program smart pumps based on the order that is entered in the electronic health record (EHR). Previous studies show that this practice increases the workload for nursing staff with many medications taking over 15 keystrokes to program. Manual programming of the smart pump can also lead to transcription errors due to factors such as high workload volumes, high patient acuity and the complexity of the medication being programmed.

METHODOLOGY: This is a retrospective review of patients who received select infusions between September 2020 and December 2020. Inclusion criteria included patients admitted to VUAH and received a heparin, insulin or propofol infusion. Exclusion criteria included if the infusion lasted less than 12 hours. The primary outcome was the variance between nursing documentation and administration data generated from smart pumps. Secondary patient outcomes included incidence of over-sedation, incidence of hypoglycemia and incidence of clinically significant bleeding due to programming errors.

RESULTS: Smart pump changes were documented within 30 minutes for 73.6% of infusions. 38.7% of all infusion had a documentation error and 4.9% had a programming error. 8.9% of the heparin infusion were associated with a major bleed, 18.4% of insulin infusions with hypoglycemia and 10.3% of propofol with over sedation. Heparin and insulin infusions accounted for the majority of documentation within 15 minutes, but also the majority of additional documentation done by nursing staff.

CONCLUSIONS: There was a 40.5% error rate for documentation and smart pump programming even though 73.6% of infusions were documented within 30 minutes. Implementing smart pump interoperability will help reduce the error rate and time spent by nursing staff. programming and documenting infusions.

PRESENTation: https://youtu.be/fCFdItonR_c

O The Effect of Immunotherapy on Brain Metastases in Non-Small Cell Lung Cancer

Presenters: Edward Lee

TITLE: The Effect of Immunotherapy on Brain Metastases in Non-Small Cell Lung Cancer

AUTHORS: Edward Lee, PharmD; Tyler Beardslee, PharmD, BCOP; Christine Davis, PharmD, BCOP; Jennifer Carlisle, MD

SELF ASSESSMENT QUESTION: What were the most common sites of disease progression in patients with recurrent or metastatic NSCLC receiving IO therapy?

Background/Purpose: About 10-40% of patients with non-small cell lung cancer (NSCLC) will develop brain metastases during the course of their disease. Current approaches to management of brain metastases in these patients include whole brain radiation therapy and local surgery. Despite these measures, the expected median survival in these patients ranges from 2.4 – 4.8 months. The addition of immunotherapy to traditional platinum doublet chemotherapy showed significant improvements in both overall survival and progression-free survival in patients with advanced (NSCLC). However, the effect of immunotherapy on the progression of brain metastases in this patient population is unknown. Ongoing trials are being conducted to explore the efficacy of immunotherapy in the setting of brain metastases in patients with NSCLC that suggest possible benefit, but no definitive data are available at this time. This retrospective chart review of patients at the Winship Cancer Institute of Emory University Hospital aims to further explore the effect of immunotherapy on brain metastases in patients with NSCLC.

Methodology: A retrospective chart review including patients at least 18 years of age with recurrent or metastatic NSCLC that received or are currently receiving treatment with at least one of the following modalities were included: (1) platinum doublet chemotherapy, (2) immunotherapy, defined as either a programmed cell death protein -1 (PD-1) or programmed cell death protein ligand-1 (PD-L1) inhibitor. The primary objective of this study is to examine the progression of brain metastases between populations that were treated with immunotherapy versus chemotherapy versus combination immunotherapy and chemotherapy. Secondary objectives include the comparing the progression of brain metastases between patients receiving chemotherapy alone versus immunotherapy alone versus combination chemotherapy and immunotherapy, progression of liver metastases, progression of metastases to other sites of the body (i.e. bone, thoracic lymph nodes), the clinical benefit of treatment (defined as the amount of time a patient remains on treatment prior to disease progression or initiation of a new agent), and immunotherapy-associated adverse effects.

Results: A total of 123 patients were eligible for analysis. 43 patients received immunotherapy alone and 80 patients received combination immunotherapy and chemotherapy. Baseline characteristics were similar between groups. There was no significant difference in the progression of brain metastases between the immunotherapy alone arm and combination immunotherapy-chemotherapy arm (16% vs 11%, $p=0.506$). No differences in the rate of liver metastases (9% vs 6%, $p=0.722$) or metastases to other parts of the body (23% vs 39%, $p=0.053$) were observed. Most patients had a clinical benefit of >12 months. Rates of discontinuation due to adverse drug reactions, the need to start immunosuppressive therapy due to immune-related adverse events, and the need to start thyroid replacement were similar between groups.

Conclusion: Immunotherapy monotherapy results in comparable rates of disease progression compared to combination chemotherapy and immunotherapy.

Presentation Objective: Describe the effect of immunotherapy on the progression of brain metastases in patients with NSCLC.

Self Assessment Question Answer: bones, thoracic lymph nodes, contralateral lung

Presentation Link: <https://youtu.be/IXqMtpovRk>

B Evaluation of Clinical Pharmacist Utilization of Cardioprotective Antidiabetic Agents in Patients with Diabetes

Presenters: Cody Parker

TITLE: Evaluation of Clinical Pharmacist Utilization of Cardioprotective Antidiabetic Agents in Patients with Diabetes

AUTHORS: Cody Parker, Grace Simpson, Joseph Crosby, Jasmyn Ellison, Allison Presnell

OBJECTIVE: Describe the utilization of cardioprotective antidiabetic medications by a clinical pharmacist working in collaboration with a physician in the primary care setting.

SELF ASSESSMENT QUESTION: What is a class of antidiabetic medications that clinical pharmacists utilize for improving cardiovascular outcomes in the primary care setting?

BACKGROUND: Determine the utilization of cardioprotective antidiabetic medications by a clinical pharmacist working in collaboration with a physician in a primary care setting

METHODOLOGY: A computer-generated list identified adult patients with type II diabetes mellitus with office visits from September 2019 to February 2020 at three primary care offices in the St. Joseph's/Candler Health System.

Patients with cardiovascular disease or risk factors were then stratified based on patient encounters with a physician only or collaborative care from a physician and a clinical pharmacist. Data was collected on medication usage and change in hemoglobin A1c during the study period.

RESULTS: A total of 232 patients were identified in the study period. Of the 116 patients evaluated in the physician only group, 29 (25%) received a cardioprotective antidiabetic medication. Of the 116 patients in the physician and clinical pharmacist group, 66 (56.9%) received a cardioprotective antidiabetic medication. In the physician only group, 39 patients (33.6%) had a reduction in A1c versus 62 patients (53.4%) in the physician and clinical pharmacist group. The average A1c percent reduction in the physician and clinical pharmacist group was 1%. There were 49 medication access issues resolved in the physician and clinical pharmacist group.

CONCLUSIONS: Under the collaborative care of a physician and clinical pharmacist, cardioprotective antidiabetic medications were utilized more frequently, there was a greater reduction in A1c, and a clinically relevant number of medication access issues were resolved.

Link to presentation:

https://youtu.be/zlpeUhFA_U0

Presenters: Jacqueline Waller

TITLE: Implementing VIONE into Patient Aligned Care Teams with Clinical Pharmacy Specialists

AUTHORS: Jacqueline Waller, Lauren Rass, Lynsey Neighbors, Molly Howard

OBJECTIVE: Identify the impact of a CPS utilizing VIONE resources to optimize patient care and safety

SELF ASSESSMENT QUESTION: According to the VIONE methodology, every medication should have a specific what?

BACKGROUND: Polypharmacy is defined by The World Health Organization (WHO) as “the administration of many drugs at the same time or the administration of an excessive number of drugs.” Polypharmacy is associated with increased risk of medication-related adverse outcomes. To help decrease polypharmacy and the number of adverse events associated with it, the Veterans Health Administration launched VIONE. VIONE is a medication deprescribing tool, which is designed to guide clinicians in determining if a medication is Vital, Important, Optional, Not indicated, and that Every medication has a specific indication or diagnosis.

METHODOLOGY: A pharmacy resident contacted high risk patients to determine their interest in completing a VIONE visit with a clinical pharmacy specialist (CPS). Patients were identified using the VIONE dashboard, and those who had a care assessment need (CAN) score of at least 90 and were prescribed at least 30 medications were contacted first. During the VIONE visit, the CPS conducted medication reconciliation utilizing the VIONE progress note template. The CPS deprescribed, optimized, or initiated medications as appropriate within their scope of practice.

RESULTS: A total of 20 Veterans were scheduled for a VIONE visit with a PACT CPS. The primary outcome was the average number of pre- and post-VIONE active medications. The average pre-VIONE medication number was 35 (28-53) and the post-VIONE average was 30 (23-48) medications. On average, seven medications were discontinued during the VIONE visit. Throughout the 20 visits, there were 41 total CPS interventions made (13 non-pharmacologic and 28 pharmacologic). 70% (14/20) of the Veterans were scheduled for follow-up visits with the CPS.

CONCLUSIONS: VIONE is an effective method of decreasing unnecessary or inappropriate medications. The VIONE visits resulted in numerous follow-up visits to manage the patients' chronic disease states. VIONE is a resource that can be used to decrease polypharmacy, promote medication safety, and identify high risk patients for pharmacist intervention.

Link to Presentation: [Implementing VIONE into PACT Clinic with CPS within a Veterans Affairs Health Care System - YouTube](#)

Y Identifying barriers to utilization of a medication access program among referred patients surveyed after discharge from an acute care hospital

Presenters: Paige Greene

TITLE: Identifying barriers to utilization of a medication access program among referred patients surveyed after discharge from an acute care hospital

AUTHORS: Paige E. Greene, T. Wells, A. Wright, J. Wood, J. McLellan, E. Hudson, M. Pitt

OBJECTIVE: At the conclusion of this presentation, the participant will be able to identify barriers to utilization of a medication access program among uninsured patients.

SELF ASSESSMENT QUESTION: All of the following are patient-reported barriers to utilization of a medication access program EXCEPT:

BACKGROUND: For uninsured residents of select counties in North Carolina, the Cumberland County Medication Access Program (CCMAP) provides prescriptions at no cost. Uninsured patients hospitalized at Cape Fear Valley Medical Center are referred to CCMAP at discharge by Cape Fear Valley Health System employees, primarily Coordination of Care personnel and Outpatient Pharmacy personnel. The purpose of this study is to describe the most frequently reported utilization barriers among surveyed patients referred to CCMAP following discharge from Cape Fear Valley Medical Center.

METHODOLOGY: This is a single-center, survey-based, descriptive research study. Referring Cape Fear Valley Health System employees collected the Medical Record Number (MRN) of patients referred to CCMAP at discharge between 10/22/2020 and 12/31/2020. These patients were contacted by a research team member via telephone at least 30 days after discharge to voluntarily participate in a survey regarding their ability to receive prescriptions from CCMAP after discharge. Patient-reported utilization barriers and demographics were recorded. A similar survey was voluntarily completed by referring Health System employees. Employee-reported utilization barriers were collected to identify discrepancies in perceived utilization barriers among discharged patients and referring Health System employees.

RESULTS: There were 69 patients referred to CCMAP at discharge by Outpatient Pharmacy personnel. Of these, 17 patients met inclusion criteria and completed the survey. Approximately 35% of patients reported their greatest utilization barrier to be uncertainty about how to apply for CCMAP. Additionally, 25 surveys were completed by referring Outpatient Pharmacy personnel. Of these, 56% of participants reported they believe the greatest utilization barrier to be patient uncertainty about how to apply for CCMAP.

CONCLUSIONS: Uninsured patients discharged from Cape Fear Valley Medical Center could benefit from increased assistance with completing CCMAP applications and enrollment with the program prior to discharge to improve continuity of care.

PRESENTATION LINK: <https://youtu.be/HHLfNwTVLHE>

R Development and Implementation of a Ketamine Protocol for Continuous Sedation in the ICU

Presenters: Chris Nixon

TITLE: Development and Implementation of a Ketamine Protocol for Continuous Sedation in the ICU

AUTHORS: Christopher Nixon, Kenneth Boley, Mickala Thompson

OBJECTIVE: Create a new protocol utilizing ketamine for continuous sedation

SELF ASSESSMENT QUESTION: List 1 potential risk to patient safety when using ketamine for continuous sedation

BACKGROUND: Create a ketamine for continuous sedation protocol for intensive care unit (ICU) use and evaluate its impact based on pre-determined parameters

METHODOLOGY: Protocol design will be based on primary literature available as well as other institution protocols. Information gathered will be compiled and adapted to meet the needs of the Huntsville Hospital Health System. After the protocol is in place, the following parameters will be evaluated for each patient that received our protocol: time of order, duration of infusion, other sedatives at time of order, blood pressure, heart rate, supportive medications given during infusion, intensive care unit length of stay, Richmond Agitation Sedation Scale scores, and vasopressor use.

RESULTS: Six patients have received the new protocol since go-live in January 2021. 100% of patients were appropriately initiated on the protocol and had achieved a goal RASS score at 24 hours. 33% of our patients required less vasopressor use with 67% requiring a higher amount, likely due to increase in illness severity. Two patients required ketamine to be titrated off due to significant elevations in blood pressure. Two patients required supportive medication administration.

CONCLUSIONS: Ketamine for continuous sedation in the ICU is a promising adjunct sedative as demonstrated by these early results. In the future, ketamine's use should be explored in different patient populations and locations within the institution. Ketamine does present with some safety concerns but to date no safety events have caused patient harm.

R Evaluation of Anti-Epileptic Drugs for the Prophylaxis of Early Post-Traumatic Seizures in Critically Ill Pediatric Patients with Traumatic Brain Injury

Presenters: Madyson Allard

TITLE: Evaluation of Anti-Epileptic Drugs for the Prophylaxis of Early Post-Traumatic Seizures in Critically Ill Pediatric Patients with Traumatic Brain Injury

AUTHORS: Madyson Allard, Whitney Moore, Juwon Yim

OBJECTIVE: Identify the role of early post-traumatic seizure (EPTS) prophylaxis following traumatic brain injury (TBI) in pediatric patients.

SELF ASSESSMENT QUESTION: Is EPTS prophylaxis recommended following TBI in pediatric patients?

BACKGROUND: TBI is a leading cause of death and disability in pediatric patients. A complication of TBI is EPTS, defined as seizures that occur within seven days of injury. These provoked seizures can increase the risk of brain damage and result in greater neurologic deficits. Current guidelines recommend seizure prophylaxis in patients with TBI, but do not recommend any specific therapeutic agent(s). This study will explore whether the use of different seizure prophylaxis agents decreases the incidence of EPTS.

METHODOLOGY: This study was a retrospective chart review of 239 patients admitted to a Children's Healthcare of Atlanta Pediatric Intensive Care Unit from January 2013 to December 2019 for a moderate to severe TBI (Glasgow Coma Scale \leq 12). The primary outcome was the incidence of EPTS in patients with and without seizure prophylaxis.

RESULTS: Of the 239 patients included in the study, 96 received seizure prophylaxis. Eleven of these patients experienced EPTS (11.5%), compared to 28/143 (19.6%) that did not receive prophylaxis resulting in an odds ratio of 0.47. The most common anti-epileptic used for prophylaxis was levetiracetam (n=76) followed by fosphenytoin (n= 19). Seizure incidence was comparable with 7 patients having reported a seizure in the levetiracetam group (9.2%), compared to 2 patients (10.5%) in the fosphenytoin group.

CONCLUSIONS: Seizure prophylaxis decreases the risk of EPTS, when compared to patients that did not receive prophylaxis. There was no statistically significant difference in choice of prophylactic agent.

LINK: <https://pro.panopto.com/Panopto/Pages/Viewer.aspx?tid=e943f2ce-9274-4008-a02f-ad0d0188f5bb>

Presenters: Taylor Servais

TITLE: Evaluation of the Management of Alcohol-Associated Vitamin and Electrolyte Deficiencies in the Emergency Department

AUTHORS: Taylor Kaye Servais, Hunter Ingoe, Roger Reeder, Alexas Polk

OBJECTIVE: At the conclusion of my presentation, the participant will be able to explain the potential decrease in time to thiamine administration associated with individualized therapy compared to banana bags.

SELF ASSESSMENT QUESTION: Is the administration of individualized thiamine versus banana bags associated with a shortened time to administration?

BACKGROUND: Recent literature evaluated the justification for intravenous (IV) administration of compounded thiamine, folic acid, multi-vitamin, and fluids (banana bags) for patients with alcohol use disorder. Evidence suggests that not all patients warrant therapy with banana bags and instead, components can be dosed individually based on symptom severity determined by the Clinical Institute Withdrawal Assessment of Alcohol (CIWA) score. The objective of this study is to evaluate the impact of banana bags versus individual thiamine therapy for alcohol associated deficiency replacement on the time to thiamine administration and cost savings.

METHODOLOGY: This two-phase, retrospective, observational review included patients > 18 years old who presented to the emergency department with an order for thiamine as part of alcohol-associated deficiency replacement. The first phase of the study assessed IV thiamine orders for deficiency replacement based on current protocols, followed by the evaluation of individual thiamine therapy based on symptom severity in phase two. The electronic medical record system was used to complete the retrospective chart review of all eligible patients. All data was recorded without patient identifiers and maintained confidentially. Documentation in the electronic medical record and the time to thiamine administration in part one versus part two of the study was used to determine if individualized thiamine therapy led to shortened time to administration and cost savings.

RESULTS: A total of 126 patients were evaluated in this study. Replacement via administration of individual components with thiamine dosing and route of administration determined by the patient's symptom severity led to a significant decrease in time to thiamine administration ($p=0.0001$) and was associated with a medication cost savings of approximately \$1,700 over a 3 month period.

CONCLUSIONS: In alcohol use disorder patients, vitamin and electrolyte replacement via administration of individual components was associated with decreased time to thiamine administration and reduced medication cost savings compared to banana bags therapy.

PRESENTATION LINK: <https://youtu.be/-pXCDRhPXXk>

Presenters: Cara Nys

TITLE: Antimicrobial Stewardship for Urinary Tract Infection in Three Emergency Departments

AUTHORS: Nys C, Funaro J, Fischer K, Shoff C, Shroba J, Toler R, Liu B, Lee H, Moehring R, Wrenn R

OBJECTIVE: Describe the methodology and impact of a multi-faceted AS intervention on the rate of guideline prescribing for UTIs in the ED.

BACKGROUND: Broad-spectrum antibiotics are often prescribed to patients presenting to the emergency department (ED) with urinary tract infection and pyelonephritis (UTI). UTIs are often misdiagnosed and lead to unnecessary antibiotic use. Thus, there is a critical need to evaluate antimicrobial stewardship (AS) tactics targeting UTI prescribing in this setting.

METHODOLOGY: We conducted a prospective evaluation of a two-phase AS intervention outlining appropriate UTI diagnosis and management across three EDs. The phase 1 intervention included introduction of a urine-specific antibiogram, education, and department-specific feedback on UTI diagnosis and antibiotic prescribing. Phase 2 included re-education, as well as department- and provider-specific feedback. Eligible patients included adults diagnosed with UTI and prescribed an antibiotic in the ED. Patients were excluded if they were admitted. The primary outcome was the rate of guideline-directed antibiotic use, which was assessed using an interrupted time series analysis with 2-week intervals. The study included a pre-intervention period (11/2018 to 11/2019), phase 1 (11/2019-8/2020), and phase 2 (9/2020-2/2021).

RESULTS: Overall, 10,426 distinct encounters were included. There was a 15% initial increase in guideline-directed antibiotics prescribing in Phase 1 compared to the pre-intervention period ($p=0.02$). With every two-week period during phase 2, there was a 3% increase of guideline-directed prescriptions ($p=0.001$).

CONCLUSIONS: Our multifaceted stewardship intervention involving treatment algorithms, education, and provider-specific feedback was effective in increasing guideline-directed antibiotic choices in the ED.

SELF ASSESSMENT QUESTION: What is an example of an antimicrobial stewardship intervention?

Link to presentation: https://youtu.be/m6ln400_xOU

Presenters: Sarah Adams

TITLE: Optimizing Pre-Operative Antibiotic Use Through Improved Penicillin Allergy Documentation

AUTHORS: Sarah Adams, Caroline Gresham, Andy Ariail, Karen Curzio Rodeghiero

OBJECTIVE: Describe the impact of a penicillin allergy questionnaire on pre-operative antibiotic use.

SELF ASSESSMENT QUESTION: Does the improvement of penicillin allergy documentation in the electronic health record increase the use of pre-operative cefazolin in penicillin allergic patients?

BACKGROUND: Penicillin allergy documentation is often incomplete in the electronic health record (EHR). Cefazolin, a first-generation cephalosporin, is the most common surgical prophylaxis antibiotic recommended in national and institutional guidelines in orthopedic, cardiovascular, neurologic and hernia surgeries. Patients with a reported penicillin allergy often receive sub-optimal pre-operative antibiotics, such as vancomycin or clindamycin, due to concern for penicillin allergy cross-reactivity with cefazolin. The purpose of this study is to improve the documentation of penicillin allergies in the EHR. The investigators hypothesize that more detailed documentation of penicillin allergies by pre-admission staff, will increase the use of pre-operative cefazolin.

METHODOLOGY: This was a single-center, interventional study comparing pre-operative antibiotic selection in patients with a self-reported penicillin allergy admitted for an elective orthopedic, cardiovascular, neurologic or hernia surgery before and after implementation of a penicillin allergy questionnaire. Nursing staff followed a penicillin allergy questionnaire and documented the allergy in the EHR. The primary outcome was the number of patients that received cefazolin for surgical prophylaxis before and after intervention. Secondary outcomes were the number of patients with surgical site infections occurring within 30 days of surgery, number of patients with detailed allergy documentation, and number of patients that received the full antibiotic dose prior to first surgical incision.

RESULTS: 100 patients were included in the pre-intervention group, while 85 patients were included in the post-intervention group. Less patients in the pre-intervention group received cefazolin pre-operatively compared to the post-intervention group (13 [13%] vs. 35 [41.2%], $p < 0.001$). There was no difference in the incidence of surgical site infection at 30 days after surgery (3 [3%] vs. 1 [1.2%], $p = 0.63$). Two patients had detailed allergy documentation in the pre-intervention group, while 43 patients had detailed documentation in the post-intervention group (2% vs. 50.6%, $p < 0.001$). 25 patients in the pre-intervention group received the full pre-operative antibiotic dose or infusion prior to first incision compared to 41 patients in the post-intervention group (25% vs. 48.2%, $p = 0.001$).

CONCLUSIONS: Use of pre-operative cefazolin increased in patients with a reported penicillin allergy after implementation of a penicillin allergy questionnaire. More patients had detailed allergy documentation in the post-intervention group with respect to reaction, when the reaction occurred, and other tolerated beta-lactam antibiotics. There was an increase in the number of patients who received the full pre-operative antibiotic dose prior to first incision, but there was no statistical difference in the incidence of surgical site infections at day 30 post-operation.

Presenters: Kailey Hoots

TITLE: Evaluation of insulin use for treatment of hyperkalemia

AUTHORS: Kailey Hoots, Lauren Chambers, Joseph Davis

OBJECTIVE: To assess the risk of hypoglycemia in VMC patients who are treated with full-dose (10 units) versus reduced-dose (less than 10 units) insulin in the setting of hyperkalemia. Patients with CKD will be stratified to identify hypoglycemia differences between the two groups.

SELF ASSESSMENT QUESTION: Should pharmacists promote reduced-dose insulin for potassium shifting in patients with renal dysfunction?

BACKGROUND: The recommended dose of regular insulin for potassium shifting is 10 units intravenously given in combination with 25 grams of intravenous dextrose to prevent hypoglycemia. Since insulin is removed from the body via glomerular filtration and peritubular diffusion, insulin clearance diminishes in chronic kidney disease (CKD). This increases the risk of hypoglycemia due to extended insulin half-life. The purpose of this study was to compare standard dose insulin (10 units) to low dose insulin (less than 10 units) regarding hypoglycemia and efficacy in reducing potassium levels. In addition, the study will identify and compare hypoglycemia occurrence rates when insulin is used for potassium shifting in the general population versus those with CKD or acute kidney injury (AKI).

METHODOLOGY: This single-center retrospective review included adult patients with hyperkalemia (potassium >5 mEq/L) who received insulin for potassium shifting between August 1st, 2019 and August 31st, 2020. Patients were excluded if they received renal replacement therapy prior to subsequent potassium measurement. The primary endpoint was the rate of hypoglycemia (blood glucose < 70 mg/dL) in patients treated with full-dose (10 units) versus reduced-dose (<10 units) insulin for hyperkalemia. Secondary endpoints included the average dose of insulin, extent of potassium lowering in standard-dose versus reduced dose insulin groups and hospital length of stay. The primary and secondary endpoints will be analyzed by comparing mean values, chi-squared and two-sample t-tests. For all comparisons, statistical significance will be defined as $p < 0.05$.

Link to presentation: <https://youtu.be/nkQXZCaUoSA>

Presenters: Aqsa Adnan

TITLE: Evaluation on the Efficacy of Testosterone Suppression with Eligard® versus Lupron®

AUTHORS: Aqsa Adnan, Aseala Abousaud, Sarah Caulfield, Bradley Carthon, Jeffrey Switchenko

OBJECTIVE: The primary objective of this research is to evaluate the median time (months) patients are not castrate while on subcutaneous versus intramuscular leuprolide in patients with known prostate cancer. Secondary outcomes are to explore differences in progression free survival and overall survival. This data will be used to identify potential factors that contribute to patients not responding to Eligard® therapy.

SELF ASSESSMENT QUESTION: How does the efficacy of utilizing Eligard versus Lupron for Prostate Cancer compare?

BACKGROUND: Prostate cancer is perpetuated by androgens that are essential for prostate cancer cells proliferation and growth. Androgen deprivation therapy (ADT) lowers androgen secretion by the testes through medical castration or by surgical castration. For this reason, these synthetic analogues of LHRH have become the mainstay of treatment to achieve androgen suppression. Leuprolide acetate, a LHRH analogue, has an increase duration of action and affinity at the pituitary receptor with known potent inhibition of androgen production. Patients administered leuprolide acetate will have an initial rise in the luteinizing hormone (LH) and follicle stimulating hormone (FSH), which thereby leads to a transient increase in gonadal steroids: testosterone, dihydrotestosterone in males and estrone and estradiol in premenopausal females. However, with continuous administration of ADT, these elevated levels will begin to decline and result in lower FSH and LH levels and serum testosterone below castrate threshold. Conclusion: Patient were not found to have a difference in time not castrate but were found to have statistical significance in the progression free survival.

Presenters: Keith Keddington

TITLE: Impact of an Inpatient Pharmacy Transplant Medication Consult Service on Non-Transplant Services

AUTHORS: Keith Keddington; Mackenzie Magid; Katherine Mieure; Meredith Hollinger; Marc Reichert

OBJECTIVE: Describe a novel service of transplant medication management to decrease immunosuppressant related medication errors in the inpatient setting.

SELF ASSESSMENT QUESTION: What resources are available to minimize the risk of inpatient immunosuppressant drug-drug interactions?

BACKGROUND: Solid organ transplant patient care is complicated by high-risk medication regimens with the potential for adverse effects, often secondary to immunosuppressant drug-drug interactions (I-DDI). Transplant pharmacists serve as immunosuppression experts on dedicated transplant teams, but their expertise is not readily available to clinicians of other specialties who may encounter patients with a history of transplant. When transplant patients are admitted to non-transplant inpatient services, the potential for I-DDIs may increase due to lack of medication familiarity. Inpatient consultation services are common for specialty care, but a transplant pharmacy specific inpatient consultation service is not described in literature. The purpose of this study is to evaluate if an inpatient transplant pharmacist consultation service can reduce I-DDIs in patients with a history of solid organ transplant admitted to a non-transplant service.

METHODOLOGY: The primary objective is to compare the number of I-DDIs before and after the implementation of a transplant pharmacy consult service. Secondary objectives include I-DDIs severity, time unresolved, immunosuppressive serum drug levels, and medication error safety event reports. Eligible patients are admitted to a non-transplant service, have a history of solid organ transplant, and orders for systemic immunosuppressant medications, namely tacrolimus, mycophenolate, azathioprine, cyclosporine, sirolimus, everolimus, and belatacept. In the consultation group, transplant pharmacists review qualifying patients and recommend medication adjustments when applicable. A historical comparator of pre-consultation encounters are matched 1:1 on relevant characteristics. Charts are reviewed by study investigators for primary and secondary objectives.

RESULTS: In Progress

CONCLUSIONS: This explores the impact of a pharmacist-driven inpatient transplant consultation service. Results from this study have the potential to provide data supporting the implementation of a transplant pharmacist consultation in the inpatient setting to reduce medication errors.

Presenters: Shelby Brooks

TITLE: Effect of a clinical decision support tool on outpatient antibiotic prescribing for acute otitis media infections – Phase I

AUTHORS: Shelby Brooks, PharmD, BCPS; Sarah Eudaley, PharmD, BCPS; Rebecca Higdon, MPH; Julie Jeter, MD; Shaunta' Chamberlin, PharmD, BCPS, FCCP

OBJECTIVE: Evaluate prescribing patterns for acute otitis media infections in a family medicine resident clinic prior to implementation of a clinical decision support tool.

SELF ASSESSMENT QUESTION: What areas of prescribing (medications, duration, doses) can be improved by implementing a CDS tool?

BACKGROUND: A significant portion of inappropriate antibiotic prescribing in the outpatient setting occurs in the pediatric population, with 1 in 5 pediatric ambulatory visits resulting in antibiotic prescriptions. Implementation of clinical decision support tools has been endorsed by the Centers for Disease Control Core Elements of Outpatient Antimicrobial Stewardship to help combat inappropriate prescribing. The purpose of this study is to evaluate antibiotic prescribing for acute otitis media before and after implementation of a clinical decision support tool.

METHODOLOGY: Phase I will be a cross-sectional study of children aged 6 months to 18 years old diagnosed with acute otitis media (defined by ICD-10 codes) at an outpatient family medicine resident clinic between January 1 – October 31, 2020. Pertinent exclusion criteria are patients with a competing bacterial diagnosis that warrants antibiotic therapy (urinary tract infections, strep throat, pneumonia), receipt of an antibiotic within 30 days prior to the visit, history of tympanostomy tubes, documented anaphylactic medication allergies prior to office visit, and recurrent otitis media infections. The primary endpoint for phase I will be prescribing trends of antimicrobial therapy for acute otitis media. Secondary endpoints will include proportion of patients receiving guideline-directed antimicrobial therapy and the proportion of patients receiving guideline-directed duration of therapy. Descriptive statistics will be utilized to describe the study population, as well as the current prescribing rates of different antibiotics for acute otitis media.

RESULTS: 64 patients fit inclusion criteria for the pre-implementation phase of the study. Approximately 50% of the population was white, while approximately 30% of the population was Hispanic/Latino. The remaining 20% included Asians, African Americans, Native Hawaiian or other. The average age of patients was 3.59 ± 4.30 months and 30% of the patients had seasonal allergies documented prior to their office visit for otitis media. None of the patients included has antibiotic allergies documented prior to their otitis media visit. In children aged 24 months and older with bilateral acute otitis media, none of them presented with otorrhea, but watchful waiting was not utilized in any of these patients even though it is guideline recommended to do so. In children aged 6-24 months with bilateral acute otitis media, none of them presented with otorrhea, but due to age and bilateral infection, initial antibiotics are warranted, but watchful waiting was used in 1 patient. In children with unilateral and severe symptoms, watchful waiting was utilized in 2 patients, instead of initial antibiotics. Appropriate first-line antibiotics were used in 90-100% of the population, while appropriate dosing was only utilized in 60-80% of the population.

CONCLUSIONS: Implementation of a clinical decision support tool in an outpatient family medicine resident will assist with appropriate utilization of watchful waiting, antibiotic dosing and treatment duration of acute otitis media.

B Evaluating student pharmacist perception and effectiveness of learning through face-to-face, online, and hybrid instructional methods

Presenters: Hannah Duncan

TITLE: Evaluating student pharmacist perception and effectiveness of learning through face-to-face, online, and hybrid instructional methods

AUTHORS: Hannah Duncan, Jenni Beall, B. DeeAnn Dugan, Roger Lander, Michael Kendrach

OBJECTIVE: Compare student pharmacist-reported perceptions of face-to-face, online, and hybrid instructional methods.

SELF ASSESSMENT QUESTION: What preference do student-pharmacists have regarding instructional method used in the classroom (face-to-face, online, and hybrid)?

BACKGROUND: A key element of pharmacy curricular accreditation standards includes utilization of current technologies for the improvement of curriculum. In the midst of the COVID-19 pandemic, many discussions regarding implementation of hybrid and/or online instructional methods are being accelerated. The purpose of this project is to assess student pharmacist perception and effectiveness of face-to face, online, and hybrid instructional methods.

METHODOLOGY: An email with a voluntary, anonymous 22-question survey was sent to the second-year and third-year student pharmacists in late November/early December 2020. The survey remained open for responses for 4-weeks, with a reminder email sent on day 21. Only surveys completed in full will be eligible for inclusion. Assessment of student grades will be collected for the class at the conclusion of the fall 2020 semester; individual grades will not be assessed. Descriptive statistics were used to explain preliminary collected data.

RESULTS: Preliminary results of 53 second-year and 56 third-year student pharmacists were assessed. Sixty-nine percent of students responded that instructional method made a difference in their performance (grade in class), with sixty-six percent of students selecting that they performed best in a face-to-face instructional setting. Baseline GPAs to-be compared to final GPAs for fall 2020 semester.

CONCLUSIONS: Preliminary survey results reveal that majority of student pharmacists prefer face-to-face instructional methods compared to either hybrid instruction or online-only instruction. While online learning provides flexible learning time and more convenience, students often stated they lacked interest and found it more difficult to learn in the online learning setting.

C Evaluation of guideline-directed utilization of intravenous iron in patients with heart failure with reduced ejection fraction in an inpatient setting

Presenters: Carrie Ellison

TITLE: Evaluation of guideline-directed utilization of intravenous iron in patients with heart failure with reduced ejection fraction in an inpatient setting

AUTHORS: Carrie Ellison; Sarah Blandy; Amanda Moyer

OBJECTIVE: To describe the utilization of intravenous iron in patients with heart failure with reduced ejection fraction at an academic medical center.

BACKGROUND: Intravenous (IV) iron repletion for patients with heart failure is currently recommended in guidelines due to noted benefits in improved quality of life, increased exercise tolerance, and reduction in patient-reported symptoms. While these recommendations were mostly based on evidence from two randomized controlled trials in the ambulatory setting, a recent trial in hospitalized patients with acute heart failure confirmed a reduction in heart failure-related hospitalizations. The purpose of this study was to evaluate intravenous iron utilization in patients with heart failure with reduced ejection fraction (HFrEF) in the inpatient, cardiac hospital setting.

METHODOLOGY: This single-center, observational, retrospective chart review was conducted in adult patients with HFrEF who received intravenous iron during hospitalization. Patients who received blood transfusions were excluded. Charts were reviewed for demographic information, ejection fraction, iron studies, and iron repletion characteristics. The primary objective of the study included the evaluation adherence to guideline directed criteria for iron deficiency defined as ferritin <100 mg/L or ferritin 100 – 300mg/L + Tsat <20%. Secondary objectives include evaluation of intravenous iron replacement completeness stratified by study site iron products and discharge recommendations for completion of IV iron if needed.

RESULTS: During the review period, 72% (n=36) of HFrEF patients who received IV iron were concordant with guideline recommendations. During hospitalization patients had approximately 67% with iron sucrose having greater repletion at ~74% during hospitalization. There was low incidence of HF readmission at thirty days with four total.

CONCLUSION: Majority of patients were repleted appropriately per guideline recommendations. While patients had greater repletion with iron sucrose, initiating IV iron earlier in the hospitalization could mitigate this difference given average length of stay to first dose was four days.

SELF ASSESSMENT QUESTION: What is/are the benefit(s) of intravenous iron in patients who have heart failure with reduced ejection fraction?

Presentation link: <https://youtu.be/IUD4AnU-v9k>

Y Comparison of Patient Adherence with Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers Pre- versus Post-COVID-19 Warnings*Presenters: Cara Beth Brann*

TITLE: Comparison of Patient Adherence with Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers Pre- versus Post-COVID-19 Warnings

AUTHORS: Cara Beth Brann, Jonathan Harward, Charles Herring, Katie Trotta

OBJECTIVE: To assess changes in medication adherence to angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs), and calcium channel blockers (CCBs) before and after COVID-19 harm-related warnings

SELF ASSESSMENT QUESTION: Should community pharmacies expect changes in medication adherence, following harm-related warnings during a pandemic?

BACKGROUND: Determine the effect of online warnings of COVID-19 infection, related to ACEI/ARB therapy, on medication adherence

METHODOLOGY: Eligible patients were those at least 18 years of age who filled a prescription at an independent pharmacy in Raleigh, NC for an ACEI, ARB, and/or CCB between September 11, 2019 to March 10, 2020 or March 11, 2020 to September 11, 2020. Adult patients at long-term care facilities serviced by the pharmacy were excluded. Medication adherence was measured using medication possession ratio (MPR), as determined by the pharmacy's dispensing software, PioneerRX, pre- and post-COVID-19 harm-related warnings. In order to detect a 3% difference in MPR for ACEI/ARB therapy with 83% power, 3,400 prescriptions were needed. In order to detect a 5% difference with 80% power, 1,140 prescriptions for CCBs were needed.

RESULTS: A total of 1,294 prescriptions for ACEI/ARB therapy were dispensed pre-warning and 1,469 post-warning. The average MPR for ACEI/ARB pre-warning was 0.8974 and 0.9020 post-warning (95% CI, -0.0187 to 0.0094, p-value 0.5223). As a comparator, the average MPR for CCB pre-warning was 0.9221 and 0.9106 post-warning (95% CI, -0.0093 to 0.0324, p-value 0.2789).

CONCLUSIONS: In this cohort of patients at Josefs Pharmacy in Raleigh, NC, there was no difference in medication adherence for ACEI/ARB therapy pre- versus post-COVID-19 warnings. Sample size was insufficient to reach power for either group.

Presentation Access: <https://youtu.be/nES1mlsFM3U>**R Effect of Adjunct Enteral Opioids on Pain Scores in Mechanically Ventilated Patients with COVID-19***Presenters: Joanna He*

TITLE: Effect of Adjunct Enteral Opioids on Pain Scores in Mechanically Ventilated Patients with COVID-19

AUTHORS: Joanna He, Joeanna Chastain

OBJECTIVE: List patient-specific reasons for IV analgesic and sedative shortages during the COVID-19 pandemic.

SELF ASSESSMENT QUESTION: Which of the following is a reason for increased IV analgesic and sedative use due to the COVID-19 pandemic?

BACKGROUND: Enteral opioids may be an alternative strategy for pain management during periods of IV fentanyl shortage due to COVID-19. This study aimed to determine the effect of adjunct enteral opioids on pain scores in mechanically ventilated COVID-19 patients receiving continuous IV fentanyl.

METHODOLOGY: Mechanically ventilated COVID-19 patients hospitalized from February through November 2020 who received adjunct enteral opioids while on continuous IV fentanyl were included in this study. The primary endpoint compared the percentage of Critical Care Pain Observational Tool (CPOT) scores at goal before and after the addition of enteral opioids. Secondary endpoints included the percentage of Richmond Agitation Sedation Scale (RASS) scores within goal as well as the analgesics and sedatives used and their total standardized equivalent doses.

RESULTS: Eighteen patients were included in this study. There were no differences in the median percentages of CPOT scores at goal before (100%, IQR 93-100) and after (100%, IQR 100-100) the addition of enteral opioids ($p=0.193$) or in the median percentages of RASS scores at goal before (100%, IQR 100-100) and after (100%, IQR 91.5-100) the addition of enteral opioids ($p=0.424$). The median daily morphine milligram equivalents of opioids decreased significantly from 714 mg (IQR 555-917) to 540 mg (IQR 298-937) after enteral opioids were added ($p=0.048$), while the median daily benzodiazepine dose increased from 0.3 midazolam equivalents/kg/day (IQR 0-0.9) to 0.4 midazolam equivalents/kg/day (IQR 0-1.2) after the addition of enteral opioids ($p=0.052$).

CONCLUSIONS: The addition of adjunct enteral opioids to continuous IV fentanyl in mechanically ventilated COVID-19 patients may lower the requirements for IV fentanyl while providing similar pain control.

Presenters: Sarah Kemerer

TITLE: Hypertonic saline sodium goals for use in cerebral edema and incidence of acute kidney injury

AUTHORS: Sarah Kemerer, Eric Shaw, Audrey Johnson

OBJECTIVE: Determine if certain sodium goals are associated with greater risk of AKI when using HTS infusions.

SELF ASSESSMENT QUESTION: Are certain sodium goals associated with greater risk of AKI?

BACKGROUND: Continuous hypertonic saline infusions are a common treatment used to reduce cerebral edema and elevated intracranial pressures. There is currently a lack of literature clearly defining sodium goals that should be targeted for efficacy and safety. Severe hyponatremia is a risk factor for acute kidney injury (AKI). This study aims to determine the safety of commonly targeted sodium goals in regards to AKI.

METHODOLOGY: This was a single-centered, retrospective, chart review approved by the Institutional Review Board. Adult patients who received hypertonic saline (HTS) infusions for at least 48 hours with serum sodium goals of 145-150, 150-155, or 155-160 mEq/L were included. Charts were reviewed from August 1st 2015, through November 30th, 2020. Patients who were pregnant, incarcerated, or with existing renal dysfunction prior to the HTS infusion were excluded. The primary outcome was incidence of AKI while hyponatremic. Secondary outcomes included hospital and intensive care unit (ICU) length of stay and mortality, hyperchloremia, renal replacement therapy, renal recovery, and duration of AKI.

RESULTS: A total of 112 patients met inclusion criteria. There were 11 patients in the 145-150 group, 72 in the 150-155 group, and 29 in the 155-160 group. The incidence of AKI was 0%, 18.1%, and 6.9% in each group respectively, which was not statistically significant (p-value: 0.128). All secondary outcomes were not statistically significant.

CONCLUSIONS: There is no significant difference in risk of AKI with different sodium goals when using HTS infusions for cerebral edema. Further studies are needed to determine if different sodium goals are associated with improved outcomes

[Link to video](#)

Presenters: My An Pham

TITLE: Evaluation of vancomycin trough-guided dosing and implementation of a new vancomycin AUC-guided dosing at a large community hospital

AUTHORS: My An Pham

OBJECTIVE: To evaluate the efficacy and safety of vancomycin trough-guided dosing and to assist in implementing the new vancomycin AUC-guided dosing at a large community hospital

SELF ASSESSMENT QUESTION: What is the incidence of acute kidney injury in patients receiving vancomycin using trough-guided dosing at our institution?

BACKGROUND: The "Therapeutic monitoring of vancomycin for serious methicillin-resistant staphylococcus aureus infections" consensus guidelines released in 2020 recommend vancomycin area under the curve (AUC)-guided dosing rather than trough-guided dosing to achieve clinical efficacy while improving patient safety. This study is conducted to evaluate the efficacy and safety of vancomycin trough-guided dosing and to assist in implementation of the new vancomycin AUC-guided dosing guidelines. The results of this study will be used next year to compare the efficacy and safety of vancomycin AUC-guided dosing.

METHODOLOGY: A retrospective chart review will be conducted on patients who received trough-guided dosing from January 2020 to March 2020. Data points will be collected to compare and evaluate the efficacy and safety of the vancomycin trough-guided dosing. The primary efficacy endpoints are the time to reach therapeutic target level, duration of vancomycin therapy, and improvement of clinical status. The primary safety endpoints are the incidence of acute kidney injury defined by KDIGO criteria. The collected data will be analyzed using descriptive statistics. This study has been approved by the institutional review board.

RESULTS: As the result of this study, percentage of patients that achieved clinical improvement was about 23% for temperature improvement and about 19.9% for improvement of white blood counts. Approximately 11.1% of patients experienced acute kidney injury while receiving vancomycin and 6.9% of patients had acute kidney injury that resulted in discontinuation of therapy.

CONCLUSIONS: After implementation of vancomycin AUC-guided dosing, future studies are needed to compare the efficacy and safety between the vancomycin AUC-guided dosing and trough-guided dosing.

Presenters: Michelle Rosado

TITLE: Impact of computerized decision support on days of antimicrobial therapy

AUTHORS: Michelle Rosado, Montgomery Green, Jonathon Pouliot

OBJECTIVE: Evaluate the impact of guideline-directed CDS on days of antimicrobial therapy based on indication

SELF ASSESSMENT QUESTION: Q: What is a tool that antimicrobial stewardship programs can utilize to improve antibiotic prescribing?

BACKGROUND: The Infectious Disease Society of America recommends integrating computerized decision support (CDS) into the Electronic Health Record as a part of antimicrobial stewardship programs. With the continual advances in technology, there is a need for more studies to address the benefit of CDS on antimicrobial prescribing. The purpose of this study is to compare the percentage of compliance with guideline recommended duration of therapy before and after implementing guideline directed indication and duration CDS during order entry.

METHODS: This study is a single-center, retrospective cohort. Data was analyzed from patients receiving selected antimicrobials before and after implementation of guideline directed CDS. The pre-implementation group includes patients from June 2019 to January 2020. The post-implementation group includes patients from February 2020 to December 2020. The primary endpoint of this study is percentage of compliance with guideline recommended duration of therapy by indication for selected antimicrobials. Secondary endpoints include hospital length of stay, rates of *Clostridioides difficile* infections, rates of antibiotic adverse events, and charting discrepancies.

RESULTS: A total of 3,362 patients met criteria for inclusion in the pre-implementation group and 3,421 patients in the post-implementation group. Patients in each group were assigned a randomly generated number and the first 200 were included in the study. The primary endpoint occurred in 30.5% (n=61) patients in the pre-implementation group and in 43.5% (n=87) patients in the post-implementation group (P=0.0071). There were no statistically significant differences in the secondary endpoints.

CONCLUSION: In this single-center, retrospective cohort the percentage compliance with guideline recommended duration of therapy was significantly higher after implementing computerized decision support for antimicrobial prescribing.

Presenters: Ly Huynh

TITLE: ENOXAPARIN DOSING IN HOSPITALIZED PATIENTS WITH COVID-19

AUTHORS: Ly Huynh, *PharmD*; Khushbu Patel, *PharmD, BCPS*

OBJECTIVE: To evaluate anti-Xa levels in hospitalized patients with COVID-19 who received level 2 or level 3 enoxaparin.

SELF ASSESSMENT QUESTION: What risk level had a higher percentage of supra-therapeutic anti-Xa level?

BACKGROUND: A high incidence of thrombosis has been reported in hospitalized patients with COVID-19. In response, many hospitals choose to do an intermediate or therapeutic anticoagulation. At our institution, the anticoagulation guideline for COVID-19 patients is stratified by three hypercoagulable stages based on D-Dimer and clinical status, level 1: prophylactic dosing with enoxaparin 0.5 mg/kg/day, level 2: intermediate dosing with enoxaparin 1 mg/kg/day, and level 3: therapeutic dosing with enoxaparin 1 mg/kg every 12 hours.

METHODOLOGY: This study was a single-center retrospective chart review of data collected from February to December 2020. Participants were adults who tested positive for COVID-19, received enoxaparin level 2 or level 3, and had anti-Xa levels collected at steady state. The primary outcome was the number of therapeutic anti-Xa for each anticoagulation level. Secondary outcomes were major bleeding, thrombosis, and readmission rate at 30 days due to bleeding or thrombosis.

RESULTS: There were 67% of therapeutic anti-Xa in level 2; 42% of therapeutic anti-Xa in level 3, non-renal dosing; and 44% of therapeutic anti-Xa in level 3, renal dosing. There were two major bleeding events in level 3 compared to one event in level 2. Three incidences of thrombosis were observed in both groups, and two patients were readmitted after thirty days due to pulmonary embolism in level 2.

CONCLUSIONS: A higher percentage of supra-therapeutic anti-Xa levels was observed in level 3 compared to level 2. Level 3 was observed to have a higher incidence of bleeding but a lower incidence of thrombosis at thirty days after hospital discharge.

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T Impact of outpatient transitions of care pharmacy program on interventions for discharged patients in a community hospital

Room A

Presenters: Tiffany Kahl

TITLE: Impact of outpatient transitions of care pharmacy program on interventions for discharged patients in a community hospital

AUTHORS: Tiffany Kahl, A. Wright, D. Benz, E. Hudson, H. McLeod, T. Wells, E. Ghassemi

OBJECTIVE: At the conclusion of the presentation, the participant will be able to describe the interventions made by TOC pharmacists involved within the discharge process.

SELF ASSESSMENT QUESTION: Which of the following reasons would it be beneficial for employing TOC pharmacist(s) to impact the discharge process? (select all that apply)

BACKGROUND: In August 2020, Cape Fear Valley Medical Center (CFVMC) implemented a transitions of care (TOC) pharmacist position in order to facilitate successful patient transitions from inpatient to outpatient care. The purpose of this project was to describe the clinical impact of the discharge process and the potential need for additional TOC pharmacists in this role.

METHODOLOGY: This was a single-centered retrospective chart review including patients discharged from CFVMC through the discharge lounge between 09/01/2020 and 12/1/2020. The primary objective was describing intervention types made by the TOC pharmacy staff on discharge prescriptions. Secondary objectives were to determine the number of patients requiring interventions, acceptance rate of interventions requiring provider approval, and time spent on interventions.

RESULTS: There were 6,185 patients discharged through the discharge lounge between 09/01/2020 and 12/1/2020. 563 discharge medication interventions were completed by the TOC pharmacy staff on 440 unique patients. The most frequent intervention types were preventing medication error (38.1%), addressing socioeconomic barriers (21.8%), and providing medication optimization (19.3%). It took pharmacy staff less than 10 minutes to complete 77.7% of interventions and more than 10 minutes to complete the remaining 22.3%. Eighty-six percent of interventions requiring provider approval were accepted.

CONCLUSIONS: The implementation of a TOC process has resulted in various types of interventions which help to facilitate patient transition from inpatient to outpatient care. Future studies could be designed to assess patient outcomes associated with the implementation of TOC pharmacist(s).

Presentation link: <https://youtu.be/0fLr1ZPNOps>

1 Kidney Transplant Outcomes Stratified by Race with a Calcineurin and Steroid Free Regimen

Room F

Presenters: Riley Scalzo

TITLE: Kidney Transplant Outcomes Stratified by Race with a Calcineurin and Steroid Free Regimen

AUTHORS: R. Scalzo, M. Harris, J. Morris & J. Byrns

OBJECTIVE: Describe the renal outcomes at 1 year, stratified by race, associated with belatacept and sirolimus after alemtuzumab induction.

SELF ASSESSMENT QUESTION: How do renal outcomes at 1 year differ between African American and non-African American kidney transplant recipients receiving belatacept and sirolimus after alemtuzumab induction?

BACKGROUND: This study aimed to describe the outcomes, stratified by race, associated with the maintenance regimen of belatacept and sirolimus after alemtuzumab induction in kidney transplant recipients.

METHODOLOGY: This was a retrospective, single-center study analyzing the outcomes of kidney transplant recipients who received belatacept-sirolimus immunosuppression after alemtuzumab induction. To be included, patients must have received a kidney-only transplant between 1/1/2016 and 8/31/2019, be > 18 years old, and EBV seropositive. The primary outcome was renal function (GFR by MDRD or CKD-EPI) at 1 year. Secondary outcomes included incidence of biopsy-proven rejection (BPAR), patient/graft survival, incidence of infection, and medication tolerability.

RESULTS: Fifteen African American (AA) and 26 non-AA patients were included. On average, patients were male, living donor recipients. At 1 year, median GFR was 60 mL/min in the AA cohort and 55.5 mL/min in the non-AA cohort ($p=0.82$). Patient/graft survival was 100%. BPAR occurred in 3 patients (20%) in the AA group, one due to non-adherence and one to a decrease in immunosuppression due to BK viremia. No BPAR was seen in the non-AA group. Mouth ulcers and leukopenia were the most common side effects (40% vs 46.2% and 20% vs 53.8%, respectively). Infection rates were similar between groups with CMV (6 patients in each) and BK viremia (5 vs 6 patients, respectively).

CONCLUSIONS: No significant differences between the AA and non-AA cohort were found in GFR at 1 year. The medication regimen was associated with excellent patient/graft survival and overall tolerability was comparable to previous studies. In conclusion, race did not impact renal outcomes in patients who received this belatacept-based regimen.

Link to presentation: <https://youtu.be/6xTmtJl1AxA>

Presenters: Leia Kent

TITLE: EXPANDING PHARMACIST-LED FATTY LIVER SCREENING AND EDUCATION IN A VETERAN POPULATION

AUTHORS: Leia Kent, Jessica Holleman, Lindsey Cross

OBJECTIVE: Recruit patients for pharmacist-led non-invasive transient elastography evaluation

SELF ASSESSMENT QUESTION: What can pharmacists recommend to a patient identified with fatty liver disease?

BACKGROUND: The purpose of this quality improvement project is to expand pharmacy services by recruiting, screening, and educating patients regarding non-alcoholic fatty liver disease (NAFLD) and its complications. NAFLD is the second-most common cause of liver transplant and third-most common cause of hepatocellular carcinoma. Among patients with NAFLD, cardiovascular disease is the most common cause of death. Managing cardiovascular risk factors such as diabetes, hypertension, and dyslipidemia is recommended for patients with NAFLD.

METHODOLOGY: Eligible patients are those with a recent new appointment with a primary care clinical pharmacy specialist (CPS) for type 2 diabetes, hypertension, or dyslipidemia. Patients were excluded if pregnant, have an implantable medical device, unable to fast for 3 hours prior to evaluation, or unable to maintain appropriate body positioning. A standardized note template will be entered into the electronic medical record to document non-invasive transient elastography results, education provided to the patient, and recommendations for the patient's primary care CPS.

RESULTS: Twenty-one patients were identified for non-invasive transient elastography evaluation. Patients were identified from the clinic FAY PACT CPS 11. Of these 21 patients, 20 patients accepted non-invasive transient elastography evaluations and 1 patient declined. 13 evaluations have been completed. Of the 13 evaluations, 77% of patients had a steatosis score of S3, indicating fatty liver disease with more than 66% of hepatocytes filled with fat. Of the 13 evaluations completed, 54% had a fibrosis score of F0, 8% had a fibrosis score of F1, 15% had a fibrosis score of F2, and 23% had a fibrosis score of F3. Pharmacist interventions included initiation of Chantix for smoking cessation and an increase or change in current statin therapy to reach high intensity

CONCLUSIONS: This project has expanded pharmacy services by recruiting, screening, and educating patients in the primary care clinic.

<https://youtu.be/qCztnrgOs0k>

Presenters: Rebecca Panter

TITLE: Impact of a COVID-19 pandemic-driven telehealth program conducted by a rural, primary care clinic on glucose control in adult patients with diabetes

AUTHORS: Rebecca Panter, Jason Moss, Kim Kelly, Ruthanne Baird

OBJECTIVE: Describe the impact telehealth encounters had on HbA1c control at rural Harnett Health clinics.

SELF ASSESSMENT QUESTION: Which recommendations can be made during telehealth encounters?

BACKGROUND: On March 14, 2020, the North Carolina governor implemented Executive Order 117 to help limit the spread of SARS-CoV-2 (COVID-19). Harnett Health's small, rural teaching clinics transitioned from traditional visits to telehealth encounters to help decrease the spread of COVID-19. Patients familiar with physical visits had to manage these new safety restrictions in their lives at work or home – and now changes in their health care visits. When taking the sudden nature of telehealth implementation into consideration, it is imperative that we understand the impact on patients with diabetes so that we are better able to serve this population.

METHODOLOGY: Patients were included if they were ≥ 18 years of age and diagnosed with type 1 or type 2 diabetes per ICD codes E10.x and E11.x. Patients had to have at least one telehealth encounter between March 15, 2020 and June 30, 2020 and an HbA1c measurement 3 to 6 months before and after the telehealth encounter. Patients were excluded if they were a resident of a skilled nursing or long-term care facility at the time of enrollment or if their HbA1c was at or below goal before the first telehealth encounter. The primary endpoint was the average change in HbA1c in patients between September 14, 2019 and March 14, 2020 and April 15, 2020 and December 30, 2020. Secondary endpoints include the number of recommendations and type of recommendations made during the telehealth encounters.

RESULTS: For the primary endpoint, the mean difference between the final and initial values was -0.4 (95%CI: -0.1 to -0.7). When reviewing types of recommendations made during the encounters, 73.6% of patients did not receive life style recommendations and 86.7% did not receive any medication recommendations.

CONCLUSIONS: Results are suggestive of positive benefits in the management of diabetes via telehealth encounters. The number of patients that did not receive any recommendations suggests that there is room to improve the process of telehealth encounters.

C Observation of transition to oral loop diuretics before discharge and risk of readmission in heart failure with preserved ejection fraction (HFpEF) Room D

Presenters: Sarah Medeiros

OBJECTIVE: Evaluate the effect of transitioning intravenous to oral loop diuretics in patients with acute decompensated HFpEF.

SELF ASSESSMENT QUESTION: Which medication has proven mortality benefit in patients with HFpEF?

PURPOSE: The purpose of this study is to evaluate the effect of transitioning intravenous to oral loop diuretics at least 24 hours before discharge on readmission rates in patients hospitalized for acute decompensated HFpEF.

METHODS: Retrospective cohort analysis comparing adult patients hospitalized for acute decompensation of HFpEF who received intravenous loop diuretics and were then transitioned to an oral loop diuretic within 24 hours of discharge versus greater than 24 hours before discharge. The primary endpoint is 30-day all-cause hospital readmission rates. Secondary endpoints include heart failure on heart failure readmissions, mortality, and length of hospital stay. Time observed on an oral loop diuretic prior to discharge will be defined as the date and time of the first dose of oral loop diuretic subtracted from the date and time of discharge in the electronic medical record without further administration of an IV loop diuretic. Patients will be included in our analyses if they meet the following criteria: admission to University of Tennessee Medical Center (UTMC) for acute decompensation of HFpEF, age of 18 years or older, received an intravenous loop diuretic during hospitalization and received a prescription for an oral loop diuretic at discharge. Patients will be excluded if they meet any of the following criteria: documentation of heart failure with reduced ejection fraction, duration of hospitalization less than 48 hours, cirrhosis, or end-stage renal disease requiring dialysis.

RESULTS/DISCUSSION: The two cohorts had similar baseline characteristics. The average age was 72 in the < 24 hour group and 74 in the >24 hour group and majority were white male with an average LVEF of 58% and BMI of 33.4. Most patients were admitted to the acute care floor as opposed to an intensive care unit. More patients in the IV loop >24 hour group received a cardiology consult which may be indicative of a sicker population at baseline. The primary outcome of all cause 30 day readmission was not statistically significant 25.3% in <24 hour group and 30% in >24 hour group with a P value of 0.55. However, secondary outcomes of 60 and 90 day heart failure readmission and all-cause readmission tended to clinically favor the IV diuretic <24 hours despite not being statistically significant.

<https://youtu.be/3Z7R8xa9uc0>

R Effect of Tamsulosin on Rates of Indwelling Urinary Catheter Reinsertion in Trauma Patients Room B

Presenters: Chris Thai

TITLE: Effect of Tamsulosin on Rates of Indwelling Urinary Catheter Reinsertion in Trauma Patients

AUTHORS: Chris Thai, Tyson Kilpatrick, Doug Wylie

OBJECTIVE: Describe the impact of tamsulosin administration on rates of recatheterization in trauma patients.

SELF ASSESSMENT QUESTION: Which of the following is true of the impact noted from tamsulosin administration in the TBICU?

BACKGROUND: Patients with an indwelling urinary catheter (IUC) are at increased risk for infectious and non-infectious complications with each IUC placement. While early removal is desired, development of acute urinary retention can lead to recatheterization and its attendant risks. It has been hypothesized that usage of tamsulosin, a selective alpha-1-A adrenergic antagonist commonly used to treat urinary retention in men with benign prostatic hyperplasia, may decrease the need for recatheterization in patients who have recently had an IUC removed.

METHODOLOGY: This retrospective cohort study examined data from patients over 18 years of age, admitted to a trauma and burn intensive care unit (TBICU) from August 1, 2019 through July 31, 2020, with orders placed for an IUC. Those receiving tamsulosin any time within seven days prior to IUC insertion and 48 hours after IUC removal were compared with those without administration of tamsulosin. The primary outcome was unadjusted odds of recatheterization. The secondary outcome was propensity score-matched odds of recatheterization.

RESULTS: 396 patients with an IUC were included (mean age 49.3±19.5 years; 30.6% female). There were 36 patients who received tamsulosin within the exposure window, and 360 patients without exposure, including 83 who received tamsulosin outside the exposure window. 30.6% in the exposure group were re-catheterized versus 29.7% in the non-exposure group, unadjusted OR 1.04 (95% CI = 0.49-2.19). Matching with propensity scores yielded similar results, OR 0.76 (95% CI = 0.28-2.12).

CONCLUSIONS: Tamsulosin administration was not associated with decreased rates of recatheterization among patients admitted to the TBICU. These findings do not support the use of tamsulosin to reduce rates of recatheterization in this patient population.

Video link: https://youtu.be/_O0yPs5HyUw

Presenters: Jillian Davis

Title: Glycemic control during insulin infusion guided by non-electronic DKA-focused protocol versus equation-based management of non-DKA hyperglycemia in critically ill patients

Authors: Jillian Davis, Joshua Chestnutt

Objective: Compare incidence of hypoglycemia and glycemic variability with non-electronic, DKA-focused versus equation-based titration of insulin infusions in critically ill patients with non-DKA hyperglycemia.

Self-Assessment Question: What are potential benefits of equation-based over non-electronic titration of insulin infusions in critically ill patients with non-DKA hyperglycemia?

Background: Electronic glycemic management systems (eGMS) utilize equation-based titration and insulin sensitivity factors to guide individualized management of continuous insulin infusions. When compared to non-electronic titration of insulin infusions, use of eGMS has been associated with lower incidence of hypoglycemia and less glycemic variability. The primary objective of this analysis was to compare incidence of hypoglycemia and glycemic variability with use of a non-electronic diabetic ketoacidosis (DKA)-focused protocol versus equation-based management of insulin infusions before and after implementation of an equation-based protocol in critically ill patients with non-DKA hyperglycemia.

Methodology: Retrospectively, an electronic health record report identified adults ≥ 18 years of age admitted to an intensive care unit (ICU) in whom a continuous insulin infusion was initiated for management of hyperglycemia before implementation of an equation-based protocol, from July 2019 through December 2020, and after protocol implementation on March 1, 2021. The titration equation was embedded within an order set and derived from an eGMS utilized at all other system facilities, but not present at the study facility. Excluded patients were pregnant women and those for whom an insulin infusion was initiated for management of DKA. Primary endpoints were incidence of hypoglycemia and degree of glycemic variability among included patients for whom non-electronic, DKA-focused titration was utilized versus equation-based insulin infusion titration before and after protocol implementation. Secondary endpoints were mean duration of insulin infusion, mean ICU length of stay, and in-hospital mortality between the study groups before and after protocol implementation.

Results: In progress

Conclusions: In progress

Presentation Link: <https://youtu.be/gf1ULVUiqQY>

I Evaluation of the diagnostic utility of metagenomic next-generation sequencing testing for pathogen identification in infected hosts

Presenters: Austin Williams

TITLE: Evaluation of the diagnostic utility of metagenomic next-generation sequencing testing for pathogen identification in infected hosts

AUTHORS: Austin Williams; Anna Estes; Zach Webster; Alexander Milgrom; Chao Cai; Majdi Al-Hasan; P. Brandon Bookstaver

OBJECTIVE: List factors associated with high and/or low diagnostic utility of mNGS testing.

SELF ASSESSMENT QUESTION: What is the most common way that mNGS testing has been used to change antimicrobial therapy?

BACKGROUND: Metagenomic next-generation (mNGS) testing is a blood test to detect cell-free DNA to identify pathogens, though data on its utility are lacking. The purpose of this study is to evaluate the clinical utility of mNGS testing and to identify factors associated with high diagnostic utility.

METHODOLOGY: All mNGS tests ordered from June 2018 through May 2020 were screened. Tests ordered for clinical diagnostic purposes in hospitalized patients at Prisma Health Richland or Prisma Health Children's hospital were included. Repeat tests were evaluated on an individual basis. Criteria to determine diagnostic utility were created a priori. Two researchers independently reviewed tests and categorized each to either high or low diagnostic utility. A stepwise regression analysis was used to identify factors associated with high diagnostic utility.

RESULTS: Ninety-six individual tests among 82 patients were included. At least one potential pathogen was identified in 58% of tests. Among 112 individual pathogens identified, there were 74 bacteria, 25 viruses, 12 fungi and 1 protist. Forty-six tests were determined to be high utility and 36 tests were determined to be low utility. Antimicrobials were changed in 67.4% of high utility tests and 11.8% of low utility tests ($p < 0.0001$). Of the antimicrobial changes, de-escalation occurred as a result in 21/46 high utility tests and 1/34 low utility tests. In the multivariate analysis, a positive test (OR = 10.9; 95% CI, 3.2-44.4) and consult to company medical director (OR = 3.6; 95% CI, 1.1-13.7) remained independently associated with high utility.

CONCLUSIONS: Positive mNGS tests are closely associated with high utility and are most commonly used to de-escalate antimicrobials while prior antimicrobial use and repeat testing did not appear to influence diagnostic utility. We conclude that all tests be accompanied by a consult with the company medical director.

https://youtu.be/snP_F70wbh8

I Interleukin-6 inhibitors for the treatment of cytokine release syndrome secondary to coronavirus disease 2019 infection at a community hospital

Room I

Presenters: Kyle Manning

TITLE: Interleukin-6 inhibitors for the treatment of cytokine release syndrome secondary to coronavirus disease 2019 infection at a community hospital

AUTHORS: KB Manning, CW Whitman, JM Tubbs, DT Childress, L Hohmann, J Leon, CE Harrison

OBJECTIVE: Describe the clinical response associated with interleukin-6 inhibitors in hospitalized patients with severe coronavirus disease 2019 (COVID-19) pneumonitis at a community hospital.

SELF ASSESSMENT QUESTION: What is tocilizumab's mechanism of action?

BACKGROUND: The purpose of this study was to evaluate clinical response in hospitalized patients with severe coronavirus disease 2019 (COVID-19) receiving interleukin-6 (IL-6) inhibitors plus standard of care against patients treated with standard of care only.

METHODOLOGY: A retrospective, observational cohort study was conducted on patients hospitalized at a community hospital with COVID-19 infections from March 2020 to May 2020. The primary outcome was clinical response, defined as an improvement of at least 2 categories relative to baseline on a 7-category ordinal scale up to hospital discharge or 30 days. Adjusted analyses controlling for covariates (length of stay, level of acuity, demographics, and Charlson Comorbidity Index) were conducted.

RESULTS: A total of 133 patients met inclusion criteria. 30 patients received an IL-6 inhibitor plus SOC and 103 received SOC alone. There was no statistical difference in the primary outcome between groups as 76.7% in the SOC alone group and 70.0% in the IL-6 inhibitor group met the defined endpoints for clinical response ($p=0.477$). In the adjusted analysis, patients treated with IL-6 inhibitors were approximately four times more likely to meet the primary endpoint [Exp(B) = 4.325; $p = 0.038$, 95% CI (1.09, 17.18)].

CONCLUSIONS: Compared to standard of care only, IL-6 inhibitors were not associated with a significant clinical improvement. However, after adjusting for covariates, this study suggests that the initiation of IL-6 inhibitors in patients with early COVID-19 pneumonitis before progression to the ICU may be associated with improved clinical status. The appropriate clinical status and time to initiate IL-6 inhibitors remains unclear, and randomized, controlled trials are needed to collect more evidence.

Links

Slides: https://drive.google.com/drive/folders/12TtIEGSFnVy_RanJmCn4CK8qtxdYAcWm?usp=sharing

AV recording: <https://drive.google.com/file/d/1k2Pg9IBgNvM4nvwV8Z1ITxOBoAXWUaTr/view?usp=sharing>

L Electrolyte protocol modifications and implementation in a large community hospital

Room E

Presenter: Lauren Butler

TITLE: Electrolyte protocol modifications and implementation in a large community hospital

AUTHORS: Lauren Butler, Cara Bujanowski, Jerry Robinson

OBJECTIVE: Identify modifications made in an attempt to improve the effectiveness and safety of an electrolyte protocol used at a large community hospital.

SELF ASSESSMENT QUESTION: Which of the following patients are receiving appropriate phosphorus replacement per this institution's electrolyte protocol?

BACKGROUND: Since moving to a new electronic medical record system, medication errors and feedback from clinical staff concerning issues with the current electrolyte protocol have been identified. The purpose of this study was to evaluate the effectiveness and safety of the current electrolyte protocol for phosphorus replacement, implement modifications, and then reevaluate post-implementation effectiveness and safety.

METHODOLOGY: A retrospective chart review included 150 adult inpatients prescribed IV sodium phosphate and 150 adult inpatients prescribed oral phosphate powder for phosphorus replacement through the current electrolyte protocol from November 2020 to December 2020. Data collection included age, weight, serum creatinine, continuous renal replacement therapy status, hemodialysis status, phosphorus level before and after electrolyte replacement, dose, result (sub-therapeutic, therapeutic, or supra-therapeutic), and appropriateness. Additionally, issues identified with the current electrolyte protocol and recommendations for improvement were presented to the institution's P&T Committee. Post-implementation effectiveness and safety will be reevaluated for phosphorus replacement, including evaluating medication errors.

RESULTS: Prior to implementation, 40.67% of patients receiving IV sodium phosphate were therapeutic after the first bolus compared to 6% in the oral phosphate group. However, the average baseline phosphorus level in the IV sodium phosphate group was 2.06 mg/dL compared to 2.2 mg/dL in the oral phosphate group. Additionally, there was approximately 49 (16.3%) errors among the 300 patients evaluated. Results of post-implementation data collection are pending, due to modifications awaiting implementation in the electronic medical record system.

CONCLUSIONS: In progress

P Evaluating the impact of pharmacist-led interventions on improving prescribing rates of alcohol use disorder pharmacotherapy

Room G

Presenters: Kalyn Pounders

TITLE: Evaluating the impact of pharmacist-led interventions on improving prescribing rates of alcohol use disorder pharmacotherapy

AUTHORS: Kalyn D. Pounders, Rashida A. Fambro, Stephanie A. Oh

OBJECTIVE: To describe how AUDIT-C scores can be used to determine when pharmacotherapy is appropriate for alcohol use disorder treatment

SELF ASSESSMENT QUESTION: What AUDIT-C scores indicate that the patient may benefit from pharmacotherapy assisted treatment?

BACKGROUND: Previous studies have shown that alcohol use disorder (AUD) pharmacotherapy is severely underutilized despite high prevalence of diagnosis. The Atlanta VA Health Care System currently has a real-time dashboard that identifies patients with an active diagnosis of AUD who may be eligible for pharmacotherapy. This project aimed to assess the prescribing rates of AUD pharmacotherapy before and after pharmacist-led interventions in order to identify quality improvement opportunities.

METHODOLOGY: For this retrospective chart review, a recommendation template was created to maintain standardization. The real-time dashboard identified patients with an active diagnosis of AUD not in remission. Identified patients meeting inclusion criteria were reviewed by a pharmacist. After review, eligible patients were recommended either acamprosate, naltrexone oral tablets, naltrexone intramuscular injection, disulfiram, or topiramate. Upon review, the impact of pharmacist-led interventions on prescribing rates was assessed.

RESULTS: A total of 65 patients were reviewed and provided recommendations for AUD pharmacotherapy. Oral naltrexone was recommended in 56 out of 65 (86.15%) patients. Only 3 patients (4.62%) had active prescriptions for AUD pharmacotherapy at the time of post intervention review. 26 out of 62 (41.94%) patients without an active AUD pharmacotherapy prescription during post intervention review had no documented offer of AUD pharmacotherapy within the electronic medical record. 6 out of those 62 patients (9.68%) declined medication assisted treatment despite being offered.

CONCLUSIONS: This method of pharmacist-led interventions did not significantly improve prescribing rates of AUD pharmacotherapy indicating there is room for quality improvement. The future direction of this initiative should focus on improving communication with prescribers in addition to creating educational opportunities for patients and prescribers within the Atlanta VA Health Care System.

T Pharmacist versus Non-Pharmacist Culture Callback Response in the Emergency Department

Room A

Presenters: Tyler Leroy

TITLE: Pharmacist versus Non-Pharmacist Culture Callback Response in the Emergency Department

AUTHORS: Tyler Leroy, Jessica Michal, Stephanie Milliken, Steven Robinette

OBJECTIVE: Demonstrate differences in appropriateness between pharmacist and non-pharmacist driven culture callback response in the emergency department.

SELF ASSESSMENT QUESTION: What is the most frequently made error when changing therapy for culture callback patients?

BACKGROUND: Bacterial infections result in roughly 100 million emergency department visits per year. Due to the high incidence of presentation, it is imperative that recommendations post-discharge are therapeutically optimal and patient appropriate. This research seeks to assess actions taken and quantify recommendation appropriateness of pharmacists and non-pharmacists in emergency department culture callback responses.

METHODOLOGY: A retrospective cohort was conducted on patients at least 8 years of age with positive urine or blood cultures who presented to any McLeod Health emergency department from November 1st, 2019, to November 1st, 2020. A sample size of 109 patients per study arm (pharmacists, non-pharmacist) was determined using alpha of 0.05, beta set at 0.1, and an extrapolated correctness rate of 80% for pharmacists and 60% for non-pharmacists. Culture callback response appropriateness was assessed utilizing a guideline-directed algorithm developed for the purpose of this project. A kappa coefficient was generated via non-pharmacist review of 10% of the total patient population to establish agreement.

RESULTS: In-progress

CONCLUSIONS: In-progress

A DEVELOPMENT AND IMPLEMENTATION OF A PERIOPERATIVE AND INTRAOPERATIVE GLYCEMIC MANAGEMENT PROTOCOL IN A COMMUNITY HOSPITAL

Room G

Presenters: Kevin Hsieh

TITLE: DEVELOPMENT AND IMPLEMENTATION OF A PERIOPERATIVE AND INTRAOPERATIVE GLYCEMIC MANAGEMENT PROTOCOL IN A COMMUNITY HOSPITAL

AUTHORS: Kevin Hsieh, Sarah Murphy, Megan Freeman, Amy Noonkester, Mary-Beth Marandola-Kenvin

OBJECTIVE: Describe intraoperative and perioperative glycemic management in a community hospital setting.

SELF ASSESSMENT QUESTION: What is the prevalence of perioperative hyper- and hypoglycemic events in the diabetic patient population undergoing surgical procedures?

BACKGROUND: Poor glycemic management in perioperative and intraoperative surgical phases has been associated with adverse clinical outcomes such as increased rates of infection, length of hospitalization, and mortality. Current guidelines recommend perioperative and intraoperative glycemic targets of 140 – 180 mg/dL. The goal of this review is to determine the prevalence of perioperative hyperglycemia and develop a standardized process for glycemic management in the perioperative setting.

METHODOLOGY: A retrospective chart review is being conducted between July 2019 – July 2021 for diabetic adult patients undergoing surgical procedures. Patients were identified by diabetes diagnosis or insulin administration in the perioperative setting. Data collected includes frequency of blood glucose measurements, percentage of patients within glycemic targets, treatment of hypo- and hyperglycemic events, and length of surgical procedure.

RESULTS: Data was collected on 130 patients. 90 patients were identified by diabetes diagnosis and 40 patients identified by insulin administration perioperatively.

Of the patients identified by diagnosis, point-of-care testing (POCT) was performed on 74.4% preoperatively and 25.6% post-operatively. 16.1% of preoperative POCT were above goal and 60.8% were above goal post-operatively. 20% of those pre-operative hyperglycemic values were treated whereas 50% of patients were treated postoperatively. Following treatment, no patient reached the glycemic target. No patient experienced hypoglycemia.

Of patients identified by insulin administration, 90% had preoperative BG >180 mg/dL (median BG 281 mg/dL). 87.5% had postoperative glucose >180 mg/dL (median BG 235 mg/dL). 7.5% of these patients reached the glycemic target following insulin administration.

CONCLUSIONS: Preliminary analysis reveal opportunities for improving perioperative glycemic management. Preoperative hyperglycemia was low, but POCT testing was inconsistent. Opportunities for improvement include increasing frequency of POCT monitoring and insulin administration for hyperglycemic events.

B Evaluation of Physician-pharmacist Education on Attitudes, Beliefs, and Knowledge Surrounding Outpatient Antimicrobial Stewardship in Family Medicine Resident Physicians

Room K

Presenters: Hannah Denham

TITLE: Evaluation of Physician-pharmacist Education on Attitudes, Beliefs, and Knowledge Surrounding Outpatient Antimicrobial Stewardship in Family Medicine Resident Physicians

AUTHORS: Hannah Denham, PharmD Stephanie Mitchell, DO Shaunta' Chamberlin, PharmD, BCPS, FCCP William Dabbs, MD Sarah Eudaley, PharmD, BCPS

OBJECTIVE: Describe attitudes, beliefs, and knowledge surrounding outpatient antimicrobial prescribing in Family Medicine residents.

SELF ASSESSMENT QUESTION: What is a way that pharmacists can assist in positively impacting outpatient antimicrobial prescribing?

BACKGROUND: Determine attitudes, beliefs, and knowledge surrounding outpatient antimicrobial stewardship in Family Medicine residents and before and after a targeted physician-pharmacist educational intervention

METHODOLOGY: This is a three-phase, multi-center, cross-sectional study of Family Medicine residents within approximately 12 family medicine residencies in the United States. Phase 1 includes administration of an anonymous online survey consisting of 3 specific sections regarding outpatient antimicrobial prescribing: attitudes, beliefs, and knowledge. Phase II will be development of a targeted physician-pharmacist-led educational intervention based on survey data. The intervention will focus on providing education and information in order to change beliefs and attitudes and expand knowledge surrounding outpatient antimicrobial stewardship, resistance, and appropriate use. Phase III will be administration of the same survey to determine the effects of the educational activity. The primary outcome will be change in resident attitudes, beliefs, and knowledge pre/post the educational intervention. The secondary outcomes will be change in attitudes, beliefs, and knowledge pre/post using the following variables: intern (PGY1) vs residents (PGY2, PGY3), student ID rotation vs none, BS in microbiology vs not, male vs female, MD vs DO, community vs academic medical center (setting of residency program), and TN vs other states. Wilcoxon signed rank will be used for data analysis. Logistic regression will be used to determine factors that influence attitudes, beliefs, and knowledge.

RESULTS: In progress

CONCLUSIONS: In progress

C Retrospective evaluation of the effect of having pharmacist-managed warfarin anticoagulation for LVAD patients

Room E

Presenters: Meredith Sutton

TITLE: Retrospective evaluation of the effect of having pharmacist-managed warfarin anticoagulation for LVAD patients

AUTHORS: Meredith Sutton, Charlie Stoner, Elizabeth Benedetti, Dominique Gignac, Richa Agarwal, Beiyu Liu, Emily Poehlein

OBJECTIVE: To evaluate potential differences in effectiveness of warfarin monitoring by pharmacists compared to monitoring by other providers in patients with left ventricular assist devices

SELF ASSESSMENT QUESTION: True or False: Patients with left ventricular devices may have their INR goals adjusted based on their bleeding history.

True

False

BACKGROUND: Left ventricular assist devices (LVADs) offer an alternative to heart transplantation or offer the ability to survive until a heart becomes available. LVADs come with risks of both bleeding and thrombosis complications and warfarin is the mainstay of anticoagulation therapy. In 2018, our institution developed a pharmacist-managed LVAD anticoagulation service. The purpose of this retrospective, single center, cohort study is to determine if there is a difference in time in therapeutic international normalized ratio (INR) range in LVAD patients on warfarin when managed by pharmacists compared to management by other practitioners.

METHODOLOGY: This single-center, retrospective, pre-post study included adult patients with new LVAD implants from 07/2014-07/2016 whose anticoagulation was managed by the LVAD department during 2017 and patients with new LVAD implants from 07/2016-07/2018 whose anticoagulation was managed by pharmacists during 2019.

Included patients were at least 18 years of age, and had a HeartMate II, HeartWare HVAD, or HeartMate 3 device. The primary endpoint was the time in therapeutic INR range during the follow-up year. The secondary endpoints included the proportion of patients with bleeding and clotting events that required an ED visit or hospital admission.

RESULTS: A total of 164 patients were included in the analysis. The time in therapeutic INR range for patients in the pharmacist-managed group was 69.4% compared to 63.1% in the pharmacist group ($p=0.016$). The proportion of patients with an ED visit or hospital admission for bleeding was 26.3% and 28.4% in the pharmacist and provider group, respectively. The proportion of patients with an ED visit or hospitalization for a clotting event was 6.6% and 5.7% for the pharmacist-managed group and provider-managed group, respectively.

CONCLUSIONS: This study suggests that patients with left ventricular assist devices that have their anticoagulation managed by pharmacists spend more time in therapeutic INR range compared to management by other providers.

R Comparing the Incidence of Hematoma Expansion after Desmopressin Administration in Patients with Spontaneous Intracerebral Hemorrhage on Antiplatelet Medications

Room C

Presenters: Taylor Gregory

TITLE: Comparing the Incidence of Hematoma Expansion after Desmopressin Administration in Patients with Spontaneous Intracerebral Hemorrhage on Antiplatelet Medications

AUTHORS: Taylor Gregory, Erin Creech, Elizabeth Wright

OBJECTIVE: Describe desmopressin's effect on hematoma expansion in patients experiencing sICH while taking antiplatelet medications.

SELF ASSESSMENT QUESTION: Is desmopressin effective in preventing hematoma expansion?

BACKGROUND: Spontaneous intracerebral hemorrhage (sICH) is associated with high morbidity and mortality. Expansion of the initial hematoma is a marker of poor prognosis but may be preventable. The use of antithrombotic medications can adversely affect outcomes, specifically hematoma expansion. This study aimed to determine the efficacy of desmopressin (DDAVP) in reducing the incidence of hematoma expansion in patients taking antiplatelet medications after a sICH.

METHODOLOGY: This was a single center, retrospective cohort study that included adult patients admitted to the Neuroscience, Medical, or Surgical Trauma Intensive Care Units for sICH with documented DDAVP administration between January 2016 and January 2020. Patients were stratified by those on antiplatelet therapy at baseline versus those who were not. Patient demographics, laboratory values, DDAVP dosage, timing of interventions and imaging were all collected. The primary endpoint was to compare the incidence of hematoma expansion. Secondary endpoints included ICU and hospital length of stay, in-hospital mortality, and functional outcome. This study was approved by the Institutional Review Board.

RESULTS: This study screened 405 patients with at least one order of DDAVP for eligibility. Ultimately, 23 individuals with no prior antiplatelet therapy and 16 with prior antiplatelet therapy were included. The baseline characteristics between these groups were similar. Exceptions included the antiplatelet group being significantly older and no antiplatelet therapy group having a higher incidence of alcohol use disorder and ICH score. The timing of DDAVP administration, neurosurgical intervention, and of imaging confirming expansion were all similar between the groups. There were no statistically significant differences found for the primary and secondary outcomes.

CONCLUSIONS: Desmopressin is not effective in preventing hematoma expansion in patients with sICH on prior antiplatelet therapy. Further study regarding the timing of desmopressin administration is warranted.

Link to presentation: <https://youtu.be/JQQdsPPifs4>

R Comparison of a pharmacist- vs nurse-directed emergency department culture review service on positive bacterial culture and rapid diagnostic test interventions.

Room B

Presenters: Lauren Cooper

TITLE: Comparison of a pharmacist- vs nurse-directed emergency department culture review service on positive bacterial culture and rapid diagnostic test interventions.

AUTHORS: Lauren Cooper, Veena Patel, Ruthanne Baird, Kim Kelly and Jason Moss

OBJECTIVE: Describe an effective pharmacist-led ED culture review service model to help ensure more appropriate antibiotic stewardship in the ED setting.

SELF ASSESSMENT QUESTION: According to this study, how does a pharmacist-directed culture review service help ensure more appropriate antibiotic selection compared to another healthcare professional-directed culture review service in the ED setting? Select all that apply.

BACKGROUND: Determine if there is a difference between a pharmacist-led emergency department (ED) culture review service compared to the previous nurse-led service with respect to the percentage of documented interventions for adult ED patients with positive cultures (urine, blood, wound) and/or rapid diagnostic test (RDTs) results requiring action.

METHODOLOGY: ED patients ≥ 18 years of age who received positive cultures (urine, wound, blood or stool) or RDT results and were evaluated and discharged from the ED from 9/24/2018 to 1/24/2019 (nurse-directed service) or from 9/24/2019 to 1/24/2020 (pharmacist-directed service) were included. Patients were included if their positive culture (urine, wound or blood) or RDT (*Chlamydia trachomatis* and *Neisseria gonorrhoea*) is actionable and required intervention. Patients were excluded if the antibiotic administered during the ED visit or a prescription provided upon discharge is regarded as the standard-of-care within corresponding treatment guidelines and the organism is sensitive to the antibiotic prescribed according to susceptibility data for positive culture. Patients were also excluded if the culture was contaminated or if bacteriuria with a colony count $<100,000$.

RESULTS: 113 cultures and/or rapid diagnostic tests (RDTs) were included in the nurse-led program and 113 cultures and/or RDTs were included in the pharmacist-led program. Urine cultures were the most prevalent culture type for both the nurse-led and pharmacist-led group with 74.6% and 62.8% respectively. The percentage of documented interventions on actionable cultures and/or RDTs was 76.9% for the nurse-led vs. 68.1% for the pharmacist-led program ($p = 0.136$). The percentage of documented interventions on actionable cultures and/or RDTs in accordance with clinical guidelines was 85.7% for the pharmacist group vs. 58.85% for the nurse-led group ($p = 0.02$).

CONCLUSIONS: While the percentage of documented interventions on actionable cultures and/or RDTs was not statistically significant, we observed a statistically significant difference in the percentage of documented interventions on actionable cultures and/or RDTs in accordance with clinical guidelines in favor of the pharmacist-led vs. nurse-led service. This finding may translate into a decrease in local antimicrobial resistance rates over time.

R Evaluating antipsychotic prescribing practices at an American Burn Association verified burn center Room D

Presenters: Annalise Labatut

TITLE: Evaluating antipsychotic prescribing practices at an American Burn Association verified burn center

AUTHORS: Annalise Labatut, PharmD, Kristen Robinson, PharmD, Rita Gayed, PharmD, Rohit Mittal, MD

OBJECTIVE: : Discuss AAP prescribing patterns in BICU patients.

SELF ASSESSMENT QUESTION: How can pharmacists evaluate appropriateness of APP continuation on transitions of care?

BACKGROUND: Characterize the prescribing patterns of atypical antipsychotics (AAPs) in patients admitted to the Burn Intensive Care Unit (BICU).

METHODOLOGY: This was a single-center, retrospective chart review of adults admitted to the BICU with a burn injury who received scheduled oral atypical antipsychotics. Prescribing patterns in the ICU and on all transitions of care were analyzed. Additionally, the appropriateness of AAP prescribing at discharge was evaluated. AAPs were considered to be appropriately prescribed at discharge if a patient was continuing a home medication, or if psychiatric consult services recommended continuing at discharge.

RESULTS: During the five year study period, 440 adults were admitted to the BICU with a burn injury, 18.2% of which were prescribed an AAP during their ICU course. Of those prescribed an AAP, 28.8% had a documented underlying psychiatric condition. Most patients were male (70%) with a median age of 41 years (29-55), a median total body surface area burn of 28.8% (16.3-44.5). The median ICU length of stay was 32 days (13-59). AAPs were primarily used to treat agitation/delirium (72.5% of patients). Quetiapine was the most commonly prescribed AAP. On transfer to stepdown, AAPs were continued in 78.4% of patients. Additionally, 67.7% were discharged on an AAP. Of these patients, continuation was considered appropriate in 54% of patients.

CONCLUSIONS: In addition to having an increased risk if ICU delirium, burn patients often suffer from pre-existing and new onset psychiatric disorders. Despite overall lower AAP prescribing in the burn ICU compared to other ICUs, over two thirds of patients initiated on AAPs in the BICU were prescribed AAPs at discharge. AAPs should be evaluated for appropriateness at each transition of care.

Presenters: Kayla Antosz

TITLE: Cost Effectiveness and Clinical Outcomes of Long Acting Lipoglycopeptides Used in Transitions of Care

AUTHORS: Kayla Antosz, Joseph Kohn, Julie Ann Justo, Majdi Al-Hasan, Alexander Milgrom, Benjamin Tabor, P. Brandon Bookstaver

OBJECTIVE: Evaluate the cost effectiveness and clinical outcomes of lipoglycopeptides in comparison to the standard of care.

SELF ASSESSMENT QUESTION: Lipoglycopeptides were associated with an increase in total health care related costs in comparison to standard of care. True or false?

BACKGROUND: Dalbavancin and oritavancin are long-acting lipoglycopeptides (LaLGPs) FDA-approved for one-time only dosing for skin and skin structure infections. The use of these agents in serious, deep-seated infections requiring protracted antibiotic courses is of increasing interest. The purpose of this study is to evaluate the clinical use of LaLGPs in patients requiring protracted antibiotic courses who are not ideal candidates for oral or outpatient parenteral antibiotic therapy.

METHODOLOGY: This is a retrospective, observational, matched cohort study at Prisma Health Midlands of adult patients who received a LaLGP or standard of care for deep-seated infections due to gram-positive bacteria. Patients who received a LaLGP were matched 1:1 to standard of care by age +/- 10 years, infection type, microorganism, and socioeconomic factor. Cost effectiveness is evaluated as total health care related costs between the two groups. Clinical success is determined as a composite endpoint of mortality, recurrence, or need for extended antibiotics. Secondary outcomes include hospital length of stay and total antimicrobial related cost of care.

RESULTS: Clinical failure was not statistically different between the LaLGP cohort and standard of care (22% vs. 30%, $p=0.491$). 6 patients left AMA in the standard of care cohort compared to 0 in the LaLGP ($p<0.022$) and the average hospital duration was 32.0 days and 22.9 days, respectively. The average cost savings per patient was \$30,500.51 in the LaLGP cohort and this was considered to be cost effective.

CONCLUSIONS: The receipt of LaLGPs may be a cost-effective treatment option for patients with deep-seated infections and factors limiting OPAT or oral therapy.

Link: <https://www.youtube.com/watch?v=6weejrZ9PC4>

Presenters: Alex Sierko

TITLE: Evaluation of the Relationship between Chronic Medication Use and COVID-19 Disease

AUTHORS: Alexandra Sierko, Courtney E. Gamston, Kimberly Braxton Lloyd, Jingjing Qian

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify how chronic medications known to impact potential COVID-19 targets might influence disease course and/or severity.

SELF ASSESSMENT QUESTION: Which medications or medication classes might influence COVID-19 disease course and/or severity?

BACKGROUND: COVID-19, caused by the SARS-CoV-2 virus, is a devastating infection that has impacted the entire world population. Although little is known regarding the viral pathogenesis, there are numerous theories related to viral impacts on the body's physiological responses. Recent research has identified potential targets and disease processes directly affected by common medications. These components include the renin-angiotensin aldosterone system (RAAS), vasodilation/ vasoconstriction, serotonin mediated responses, the coagulation cascade, histamine release, and the inflammatory response. The purpose of this project is to determine if chronic use of medications known to impact potential COVID-19 targets influences disease course and/or severity.

METHODOLOGY: A retrospective review of the National COVID Cohort Collaborative (N3C) database was conducted to examine relationships between chronic treatment with certain medications and disease course/severity. In this presentation, preliminary analysis of the impact on all-cause mortality for patients taking chronic histamine-2 receptor antagonist (H2RA) therapy with positive and negative results for COVID testing are reported. Records from patients taking omeprazole were compared as a control for the active treatment of gastroesophageal reflux disease (GERD). Correlation analyses are ongoing to identify relationships between medication use and disease outcomes including symptomology, care needed (e.g. intubation, intensive care unit admission), death, and severity classification.

RESULTS: Preliminary analysis of nearly 800,000 patient records demonstrated significant differences in demographic and comorbidity profiles in COVID positive verses negative patients and patients taking H2RA verses omeprazole therapy. A multivariate analysis will be conducted to determine the impact of H2RA therapy on COVID disease course and outcomes and the impact of demographics and comorbidities on those outcomes.

CONCLUSIONS: In progress

https://docs.google.com/presentation/d/1_gJHCeJutlpnJ6gQPR_ATSnBMvYGMHdbFFxtau26CA0/edit?usp=sharing

Presenters: Lydia Miller

TITLE: EVALUATION OF THE USE OF OUTPATIENT ANTIMICROBIAL THERAPY (OPAT) VERSUS ORAL ANTIBIOTIC THERAPY IN BONE AND JOINT INFECTIONS IN A VETERAN POPULATION

AUTHORS: Lydia G Miller, James A Carr, Todd McCarty

OBJECTIVE: Outline the use of outpatient antimicrobial therapy compared to oral antibiotic therapy for bone and joint infections in a veteran population.

SELF ASSESSMENT QUESTION: Can antimicrobial stewardship be improved by assessing the use of antibiotics for bone and joint infections?

BACKGROUND: Evaluate within a VA Health Care System the use of intravenous versus oral antibiotic use for the treatment of bone and joint infections.

METHODOLOGY: This research project consisted of a retrospective chart review conducted by reviewing electronic medical records and collecting data on a specific data collection form. Patient information was gathered for any patient receiving outpatient parenteral antimicrobial therapy or oral antibiotics for bone and joint infections. The patient chart was reviewed for inpatient infectious disease consults and to collect variables including age, sex, indication, duration of therapy, available culture data, and surgical interventions. For purposes of this study, patients with Staphylococcus aureus bacteremia, bacterial endocarditis, any concomitant infection which required a prolonged intravenous course of antibiotics, or septic shock or systemic features requiring intravenous antibiotics were excluded.

RESULTS: Research is currently ongoing.

CONCLUSIONS: Research is currently ongoing

Presenters: Pooja Ojha

TITLE: Improving Time to Administration of Specified Time-Critical Medications

AUTHORS: Pooja Ojha and Ryan Crossman

OBJECTIVE: The objective of this presentation is to evaluate the approaches taken at a community hospital to improve time-to-administration of time critical medications.

SELF ASSESSMENT QUESTION: Did education for the pharmacy and nursing departments plus optimization of the automated dispensing cabinet inventory improve time-to-administration of time-critical medications?

BACKGROUND: Timely medication administration is important within the acute care setting because delays in medication administration may have negative impacts on patient outcomes. Many scheduled medications allow for flexibility during administration (i.e. being given one hour sooner or later than the scheduled time). However, the Institute of Safe Medication Practices (ISMP) and the National Integrated Accreditation for Healthcare Organizations (NIAHO®) define time-critical medications as those that must be given within a one-hour time frame of the scheduled dose (i.e. 30 minutes before or after the scheduled dose). A delay of greater than 30 minutes in the administration of a “time-critical” medication has the potential to cause harm or have a negative impact on the patient’s clinical course or outcome. The aim of this research proposal is to improve time to administration of time-critical medications at Piedmont Columbus Regional.

METHODOLOGY: This is a quality improvement study that will provide universal education to the nursing and pharmacy departments about the appropriate administration of time-critical medications. Further strategies will include:

- Adjusting medications in automated dispensing cabinets to include most time-critical medications in order to avoid delays that may be caused by medication delivery from pharmacy
- Creating one-page reminders to post near automated dispensing cabinets regarding the identification of time-critical medications
- Utilizing badge reminders in order to identify a medication as time-critical

Data collected will not be patient identifiable. Data collected will represent the number of times medication administration was done within the one-hour time frame of the scheduled dose.

RESULTS: In progress

CONCLUSIONS: In progress

○ **Physician Prescribing Patterns of Anti-Infective Prophylaxis and Incidence of Opportunistic Infections in Lymphoma Patients on B-cell Targeted Therapies**

Presenters: David Doan

TITLE: Physician Prescribing Patterns of Anti-Infective Prophylaxis and Incidence of Opportunistic Infections in Lymphoma Patients on B-cell Targeted Therapies

AUTHORS: David Doan, Kelly Valla, Jeffrey Switchenko, Jonathon Cohen

OBJECTIVE: Identify effects of antimicrobial prophylaxis in patients with lymphoma receiving B-cell targeted therapies.

SELF ASSESSMENT QUESTION: Which B-cell targeted agent is associated with the highest incidence of infection?

BACKGROUND: The prescribing patterns of prophylactic antimicrobials among physicians at Winship Cancer Institute are inconsistent in patients taking modern B-cell targeted therapies such as Bruton's tyrosine kinase inhibitors, phosphoinositide 3-kinase inhibitors, and venetoclax for different types of lymphomas. Current guidelines provide minimal guidance on the appropriate prevention and management of opportunistic and non-opportunistic infections in this patient population and the literature offers varied data regarding the true incidence of infections with these agents. The purpose of this study is to develop a better understanding of infection risk in these patients with the aim to ultimately design and implement a protocolized approach for antimicrobial prophylaxis to reduce variability in provider practices and improve overall patient care.

METHODOLOGY: This study is a single-center, retrospective chart review of patients ≥ 18 years old undergoing cancer treatment with ibrutinib, acalabrutinib, zanubrutinib, idelalisib, duvelisib, copanlisib, or venetoclax for chronic lymphocytic leukemia, small lymphocytic lymphoma, mantle cell lymphoma, marginal zone lymphoma, or follicular lymphoma from January 1, 2015 to June 30, 2020. Patients were excluded if they had an active infection at anti-cancer treatment initiation or if they had received ≥ 20 mg of prednisone per day (or dose equivalent) for ≥ 3 weeks prior to initiation of anti-cancer therapy. The primary outcome was to evaluate the prescribing patterns of opportunistic infection prophylaxis among patients receiving B-cell targeted therapies. Additionally, data are being analyzed descriptively and with multivariate statistics to characterize and evaluate patterns associated with the development of opportunistic infections and non-opportunistic infections. Clinical outcomes associated with antimicrobial prophylaxis use in the prevention of opportunistic infections in lymphoma patients on anti-cancer therapies will also be assessed.

RESULTS: A total of 168 patients with a median age of 70 years were analyzed. Most patients were men (67.2%), Caucasian (68.4%), not actively enrolled in a clinical trial (92.2%), and had an ECOG performance status of either 0 or 1 (70.2%). Chronic lymphocytic/small lymphocytic lymphoma was the most common primary malignancy (70.8%), followed by mantle cell lymphoma (16.6%). Ibrutinib (66%), venetoclax (22%), and idelalisib (7.7%) were the most common B-cell targeted agents used. Anti-microbial prophylaxis was prescribed in 82 patients (48.8%) and there were 8 cases of opportunistic infections overall. Non-opportunistic infections were more common, which included 40 patients (23.8%) with a documented infection. Cancer treatment was modified in 25 patients (14.8%) due to infection.

CONCLUSIONS: Overall, the incidence opportunistic infections is low. Of the patients who developed an opportunistic infection, 87.5% were on antimicrobial prophylaxis that covered that opportunistic infection. Given this, antimicrobial prophylaxis may still be warranted in lymphoma patients on B-cell targeted therapies. Using these data and further understanding this patient population, protocols can be developed to standardize care.

<https://www.youtube.com/watch?v=JIIQBgkXGrY>

Presenters: Abigail Bouknight

TITLE: Automatic dispensing cabinet optimization in a large, academic medical center

AUTHORS: Abigail Bouknight, Cortney Dodson, Derek Rhodes, Laura Holden

OBJECTIVE: Assess the impact of an optimization algorithm on automated dispensing cabinet efficiency

SELF ASSESSMENT QUESTION: What are the benefits of utilizing an algorithm to optimize ADC inventory?

BACKGROUND: Automated dispensing cabinets (ADCs) have been utilized as a component of the decentralized pharmacy model since the late 1980s as a strategy to improve efficiency (ISMP). While the benefits of ADCs are certainly recognized, assessing optimization of such machines is important to ensure operational efficiency in the healthcare system. Mathematical algorithms are one approach to optimization by evaluating inventory management and adjusting maximum and minimum par levels. The hope with this method is that once an ADC is optimized, there will be a reduction in the number of stock-outs and improved vend:fill ratios. The purpose of this study is to implement a mathematical algorithm on pre-identified machines and evaluate its effectiveness at improving ADC output.

METHODOLOGY: Four ADCs, two intensive care units and two cardiac telemetry units, will be selected for optimization via a previously validated mathematical algorithm. The algorithm will be applied to each medication that has been identified as standard stock. Minimum and maximum par values for each of these medications will be manually adjusted in the ADCs based on the algorithm. Each machine will be analyzed after 60 days of operating under the optimization algorithm. Overall total stock-outs and vend:fill ratios will be evaluated in the before and after periods.

RESULTS: Both the primary outcome (stock-outs) and secondary outcomes (vend:fill) show 3 of 4 machines showing positive percent change post implementation.

CONCLUSIONS: Mathematical algorithms should be considered as an opportunity for successful ADC optimization in a large, academic medical center.

Presenters: Tatyana Givens

TITLE: Benefits Paid for Home or Outpatient INR Monitoring versus Facility INR Monitoring

AUTHORS: Tatyana Givens, Ricky Chan, Ashley Woodhouse

OBJECTIVE: Identify the healthcare dollars benefit paid for patients receiving facility INR monitoring to home and outpatient INR monitoring services.

SELF ASSESSMENT QUESTION: How do healthcare dollars benefit paid differ between home/outpatient and in-clinic INR monitoring?

BACKGROUND: Criteria for billing and scope of supervision surrounding facility or home and outpatient INR monitoring services are different, but evidence supports that clinical outcomes are similar. The purpose of this study was to compare the healthcare dollars benefit paid for patients receiving facility INR monitoring to home/outpatient INR monitoring to highlight economical options.

METHODOLOGY: Eligible patients were those 18 years of age or older receiving chronic (> 3 months) warfarin therapy management at the Center for Medication Management via facility INR monitoring or home and outpatient INR monitoring services. Data was assessed by final claims analysis for total healthcare dollars benefit paid (defined as the total amount paid by a third-party company and patient) and total out of pocket costs for patients receiving home/outpatient INR monitoring and facility INR monitoring. INR results for September 2019 through September 2020 were collected to calculate time in therapeutic range (TTR) and validate current evidence outcomes.

RESULTS: Forty-six patients were included in this IRB-approved study. Sixteen patients were included in the home/outpatient INR monitoring group and 30 patients were included in the in-clinic INR monitoring group. Average healthcare dollars paid (each visit) for home/outpatient INR monitoring and in-clinic INR monitoring were \$5.91 and \$94.20, respectively. Average out of pocket cost (each visit) for home INR monitoring and in-clinic INR monitoring were \$0.71 and \$25.33, respectively. TTR for home INR monitoring and in-clinic INR monitoring were 70% and 71%, respectively.

CONCLUSIONS: Reimbursement rates differ considerably for these two therapeutically equivalent interventions.

Results reveal that patients who monitor INR at home have reduced co-payment costs which might lead to enhanced quality of life while achieving equivalent therapeutic outcomes when compared to in-clinic INR monitoring.

Audiovisual recording link: https://youtu.be/XLix_CpSpQA

Presenters: Shelbie Foster

TITLE: Impact of clinical decision support on outpatient fluoroquinolone prescribing

AUTHORS: Foster S, May A, Quairoli K, Hester A, Kandiah S, Advani S

OBJECTIVE: To assess the change in percentage of inappropriate fluoroquinolone prescriptions written at GHS outpatient clinics before and after CDS panel implementation.

SELF ASSESSMENT QUESTION: In what ways can pharmacists work to continually reduce the rate of inappropriate fluoroquinolone prescriptions?

BACKGROUND: Improving antibiotic prescribing practices is critical to prevent drug resistance, reduce adverse effects, and minimize the use of excess healthcare resources. The majority of antibiotic expenditures in the United States are associated with the outpatient setting and the Centers for Disease Control and Prevention (CDC) estimates that at least 30% of antibiotics prescribed in the outpatient setting are unnecessary. In response, Grady Health System's (GHS) stewardship team along with clinical pharmacists implemented clinical decision support (CDS) panels in the electronic medical record (EMR) to assist providers in prescribing antibiotics known to be inappropriately prescribed in the outpatient setting.

METHODOLOGY: A retrospective chart review of GHS's EMR was utilized to compare patients from February 1, 2019-July 31, 2019 to patients from November 1, 2016-April 30, 2017 who received a prescription for oral ciprofloxacin, levofloxacin, or moxifloxacin from a GHS primary care or neighborhood clinic. Patients were included if they were at least 18 years old.

RESULTS: A total of 406 patients were included. Ciprofloxacin was the most frequently prescribed fluoroquinolone in both the before and after groups. Treatment was deemed inappropriate in 89.3% of patients that were prescribed fluoroquinolones prior to implementation of CDS panels compared to 46.8% after implementation of CDS panels. 80.6% of inappropriate prescriptions in the before group were due to inappropriate indication compared to 70.7% in the after group.

CONCLUSIONS: Implementation of CDS panels in the EMR reduced the proportion of inappropriate fluoroquinolones prescriptions at GHS primary care clinics.

Presenters: Hilary Smith

TITLE: Continuous epinephrine infusion compared to standard bolus dosing in advanced cardiac life support

AUTHORS: Hilary Smith, PharmD; Eric Shaw, PhD; Stephanie Lesslie, PharmD, BCPS, BCCCP

OBJECTIVE: To compare continuous epinephrine infusion to standard bolus dosing in advanced cardiac life support (ACLS).

SELF ASSESSMENT QUESTION: Is there a benefit to use continuous epinephrine infusion over standard bolus dosing during ACLS?

BACKGROUND: Epinephrine is the primary medication administered during advanced cardiac life support (ACLS). During ACLS, epinephrine is most commonly administered by a standard IV push dose of 1 mg every 3 to 5 minutes. Guidelines suggest that epinephrine infusion is a potential option that is comparable to push dose. There are theoretical benefits to administering epinephrine as a continuous infusion during ACLS like maintaining ROSC and blood pressure post cardiac arrest. At our institution, the use of continuous epinephrine infusion is commonly implemented at the provider's discretion. This will be the first study to our knowledge to evaluate the effectiveness of continuous epinephrine infusion to bolus dosing in cardiac resuscitation.

METHODOLOGY: This was a single center, observational, retrospective study. All adult patients that experienced a cardiac arrest and had complete code documentation that received either epinephrine continuous infusion or standard bolus dosing from January 1st, 2019 to December 31st, 2020 were included. The primary outcome was mortality at 24 hours after cardiac arrest. Secondary outcomes were any achievement of ROSC, ICU mortality, survival to hospital discharge with a favorable neurologic outcome (mRS of 3 or less), ICU length of stay, hospital length of stay, and need for renal replacement therapy.

RESULTS: A total of 176 patients were included (136 in continuous infusion group and 40 in bolus group). Mortality was 69% in the bolus group compared to 87.5% in the continuous infusion group, which was statistically significant ($p=0.021$). There were no statistically significant differences between groups in secondary outcomes.

CONCLUSIONS: Continuous epinephrine infusion in cardiac resuscitation was associated with higher mortality than the standard bolus dosing.

https://static.sched.com/hosted_files/2021southeasternresidency/b5/SERC%20Recording%20%281%29.mp4

Presenters: Taylor Miller

TITLE: Impact of Process Changes to Improve Timing of First Dose of Caffeine in Preterm Neonates

AUTHORS: Taylor Miller, Laura Hagan, Corinne Murphy

OBJECTIVE: Describe how stocking loading doses of caffeine in automated dispensing cabinets in the NICU impacted time to first dose of caffeine in preterm neonates.

SELF ASSESSMENT QUESTION: Does improving accessibility of caffeine improve time to first dose?

BACKGROUND: Preterm neonates are at risk for bronchopulmonary disease (BPD). Caffeine improves lung function by increasing central respiratory drive and diaphragmatic activity. Studies suggest caffeine administration within three days of life leads to improved outcomes and a reduction in BPD. The purpose of this quality improvement project was to assess if improving caffeine accessibility has an effect on timing of the first dose in preterm neonates.

METHODOLOGY: This was an IRB approved, retrospective chart review that compared time to first dose of caffeine pre- and post-implementation of a process change that moved to dispense initial doses of caffeine from automated dispensing cabinets in the NICU as opposed to dispensing from central pharmacy. This chart review was conducted from July 1, 2016 to February 28, 2021 and included neonates who received prophylactic caffeine. The primary outcome was to determine if improving accessibility of caffeine in the NICU improved time to first dose in preterm neonates. Neonates were included if they were born less than 29 weeks gestation and received prophylactic caffeine during their hospital stay. Neonates were excluded if they were transferred from another facility, experienced mortality within the first three days of life, or electronic medical records were inaccessible.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Hannah Gipson

OBJECTIVE: To discuss the implementation process of order set changes and compare patient outcomes after updating joint replacement surgical order sets at Huntsville Hospital.

SELF ASSESSMENT QUESTION: What steps can a pharmacist take in ensuring appropriate dosage of medications are used in surgical order sets?

BACKGROUND: A new surgeon was recently added to staff asking for changes to the current perioperative orders for managing patients undergoing total hip, shoulder, and knee joint replacement. The purpose of this study is to assess current joint replacement surgical order sets at Huntsville Hospital and develop new order sets based on literature while taking into consideration recommendations from arthroplasty surgeons, anesthesiologists, advanced practitioners, nurses, pharmacists, and hospital management.

METHODOLOGY: Requested changes were compared with the current order sets. Literature was reviewed prior to meeting with surgery staff to make recommendations on best practices between requested changes and the current order sets. An updated order set was created and reviewed by the surgery staff to agree on desired practice standards. Preliminary data was collected to perform a case-matched comparison between surgeons already practicing similar to the new order set to surgeons practicing similar to the current order set. Outcomes measured included TXA use, VTE management, multimodal pain control, length of stay, readmission rate, and straight catheter requirement.

RESULTS: An extensive literature review of 38 drug or fluids was performed. After measuring preliminary outcomes, current arthroplasty treatment practices appear similar to the new order set.

CONCLUSIONS: Multiple changes have been made in the new order set to help decrease length of stay and readmission rates. The order set is currently being updated and implemented in the electronic health record based on a joint consensus of team members. Education to staff will be provided once the new order set is ready in the electronic system.

Presenters: Madeline Volk

TITLE: Impact of medications for opioid use disorder in people who inject drugs with infections

AUTHORS: Madeline Volk, Michael Veve, Laurence Wright, Sam Yeager, Paul Miller, Mahmoud Shorman, Mark Rasnake, Paul Miller

OBJECTIVE: Identify the outcomes associated with medications for opioid use disorder (MOUD) in people who inject drugs (PWID) with infections

SELF ASSESSMENT QUESTION: Based on this study, which medications are associated with a reduction in leaving AMA and infection-related readmissions in PWID?

BACKGROUND: Infectious complications manifest in PWID, including skin and soft tissue infections, bacteremia, endocarditis, and osteomyelitis. Among PWID hospitalized with infections, high rates of leaving against medical advice (AMA) and subsequent readmissions are reported. The purpose of this study is to determine if outcomes in PWID with infections differ based on receipt of MOUD.

METHODOLOGY: This retrospective cohort study included adult patients hospitalized for infections related to injection drug use from 1/2017-1/2021. Patients were excluded for being on medications for analgesia only, injecting only non-opioid drugs, or being in law enforcement custody. The primary endpoint is a composite of 90-day infection-related hospital readmission and AMA discharge. Categorical variables were compared using the Pearson χ^2 or Fisher's exact test. Continuous variables were compared by the Student's t-test or Mann-Whitney U-test. Logistic regression will be utilized to account for potential confounders.

RESULTS: Among the patients included in this study, 50 received MOUD and 150 did not. The primary outcome occurred in 18 patients in the MOUD group and 85 patients in the non-MOUD group (36% vs. 56%, $p=0.014$).

Leaving AMA occurred in 12 patients in the MOUD group and 60 patients in the non-MOUD group (24% vs. 40%, $p=0.041$). Infection-related readmission occurred in 6 MOUD patients versus 49 non-MOUD patients (12% vs. 33%, $p=0.005$).

CONCLUSIONS: MOUD significantly reduced 90-day infection-related readmission and leaving AMA in PWID with infections.

https://static.sched.com/hosted_files/2021southeasternresidency/46/SERC_Volk.mp4

Presenters: Trinh Vu

TITLE: Pharmacist-Led Medication Histories Reduce Antiretroviral Medication Errors in Hospitalized Patients

AUTHORS: Trinh Vu, Mark Priddy, Zanthia Wiley, Jesse T. Jacob, K. Ashley Jones

OBJECTIVE: Evaluate the impact of medication histories conducted by pharmacists on medication discrepancies in hospitalized patients with HIV.

SELF ASSESSMENT QUESTION: What was the absolute reduction in overall medication error rates after the quality initiative?

BACKGROUND: Patients with human immunodeficiency virus (HIV) are at an increased risk for medication errors during hospitalization compared to those without HIV. Antiretroviral (ARV) medication errors can lead to adverse effects, resistance, and increased healthcare costs, making this an important target for patient safety and stewardship. We sought to evaluate the impact of medication histories conducted by pharmacists prior to ARV order verification on medication errors in this patient population.

METHODOLOGY: We conducted a quasi-experimental study evaluating a quality initiative that aimed to reduce ARV medication discrepancies in our urban academic medical center. Clinical pharmacists were provided structured education and a guide for obtaining accurate medication histories prior to order verification. We evaluated the rate of ARV medication discrepancies before (01/01/2018 – 12/31/2018) and after (01/01/2019 – 12/31/2019) implementation, including the type of discrepancies, discrepancies occurring upon initial order entry, after pharmacist verification, and on subsequent days after medication verification.

RESULTS: We randomly selected 400 patient encounters in the pre- and 400 patient encounters in the post-initiative group for inclusion. The medication error discrepancies were 39.8% and 25.5% ($p=0.0009$) in the pre- and post-initiative groups, respectively, resulting in an absolute reduction of 14.3%. Patients were less likely to have at least one medication error in the post-initiative group (20.0% vs. 37.0%, $p<0.0001$). The overall number of medication errors decreased across all error types during the post initiative period, with the largest impact on drug-drug interactions and drug omission.

CONCLUSION: A reduction in ARV medication errors was observed after implementation of the pharmacist-led ARV medication history quality initiative. Dedicated pharmacist training and management of ARVs can decrease the overall number of medication errors associated with HIV/AIDS.

https://youtu.be/_DCD9ONqeME

Presenters: Adrienne Bundrick

TITLE: Impact of Pharmacist Direct-Acting Oral Anticoagulant Monitoring in the Inpatient Setting

AUTHORS: Adrienne Bundrick, Alyson Burns, John Howard, Mary Blumer, Alex Ewing, Lindsay Reulbach

OBJECTIVE: To evaluate and assess pharmacist monitoring of DOAC agents during inpatient admissions as the new standard of care

SELF ASSESSMENT QUESTION: What outcomes do pharmacists improve through monitoring of DOAC anticoagulant therapy?

BACKGROUND: Optimal anticoagulant dosing is vital, as inappropriate regimens can contribute to morbidity and mortality. Pharmacist involvement in anticoagulation improves patient outcomes in both outpatient and inpatient settings. However, limited studies analyze pharmacist impact of inpatient DOAC monitoring. Recently, Prisma Health-Upstate implemented a standardized process for pharmacist DOAC monitoring. The purpose of this study is to determine the impact of pharmacist DOAC monitoring in the inpatient setting on the incidence of optimal dosing at discharge.

METHODOLOGY: This is a single-center, observational study comparing pre- and post- implementation of a pharmacist DOAC monitoring protocol during hospitalization. The primary outcome is change in incidence of optimal DOAC dose at discharge after implementation of pharmacist monitoring. Secondary outcomes include hospital length of stay, all-cause in-hospital mortality, readmissions, mortality, rates of optimal DOAC therapy, and rate of pharmacist intervention and physician response.

RESULTS: A total of 473 patients were included, with 227 in the pre-group and 246 in the post-group. There was no significant difference in the primary outcome of overall DOAC dose optimization at discharge, with 133/197 (67.51%) doses optimized in the pre-group and 160/220 (72.85%) doses optimized in the post-group, ($p=0.278$). There were significantly higher rates of documented pharmacist DOAC interventions ($p<0.001$) and DOAC doses optimized following provider acceptance of pharmacist intervention in the post- group ($p<0.001$).

CONCLUSIONS: There was no significant difference in overall DOAC dose optimization at discharge. However, this data supports the continued involvement of pharmacists in protocolized DOAC dose optimization.

<https://www.youtube.com/watch?v=IsLeoDlyoT4>

Presenters: Jonathan Mansfield

TITLE: Impact of a Rheumatology Population Management Tool on Clinical Pharmacy Specialist Workflow in a VA Medical Center

AUTHORS: Jon Mansfield, Lori Bennett

OBJECTIVE: Outline medication monitoring parameters for commonly prescribed immunomodulators

SELF ASSESSMENT QUESTION: Which of these medications requires routine monitoring of lipid panels?

BACKGROUND: Rheumatological conditions often require treatment with medications that are associated with significant toxicities and require close monitoring. Active review by a Clinical Pharmacy Specialist (CPS) ensures that patients prescribed these drugs receive guideline-recommended monitoring. At the Ralph H. Johnson VA, a rheumatology population management tool was implemented to enhance monitoring efficiency and streamline CPS workflow. The purpose of this study is to examine the impact of this tool.

METHODOLOGY: Patients were included if enrolled in the VA rheumatology clinic and receiving active treatment.

Health factors within note templates were used to track interventions made by the pharmacist. The primary outcome of this study is to describe the changes in interventions made by the rheumatology CPS after dashboard implementation. The secondary outcomes were to report the changes in number of lab orders by the CPS, progress notes written, and scheduled appointments per day. The safety outcome was to compare emergency department visits before and after dashboard implementation for the patient panel.

RESULTS: There were 992 total interventions in the post-dashboard cohort and 788 in the pre-dashboard cohort. The total number of lab orders placed by the CPS was reduced by approximately five percent. Progress notes written increased by 10 percent, likely due to implementation of a new note template. Average number of appointments scheduled in the clinic was reduced by over 50 percent. There were 108 total ED visits by the patient panel, but only two were related to a medication of interest. Both of these visits were in the pre-dashboard cohort.

CONCLUSIONS: A population management tool implemented into a rheumatology clinic can serve to reduce lab orders, enhance clinic flexibility, and uphold quality of care standards.

LINK: <https://youtu.be/oOscYX3WEHQ>

Presenters: Daniel Schrum

TITLE: Effect of High Cost Medications on Outcomes for Cancer Patients

AUTHORS: Daniel P. Schrum, Meredith T. Moorman, Sally Barbour

OBJECTIVE: Describe the impact of high-cost chemotherapeutic medications on monetary and clinical outcomes.

SELF ASSESSMENT QUESTION: Which of these is true: A.High-cost medications at the end of life have been linked with increased costs with minimal clinical benefit B.Palliative care consultation rates are low even though it has been linked with increased quality of life C.Cost is always correlated with efficacy in terms of chemotherapeutic medications D.A/C E.A/B F.All of the above

BACKGROUND: The prescribing of high-cost cancer medications has been met with increased criticism during recent years, especially in end of life scenarios due to increased cost and limited clinical efficacy. Currently at Duke University Hospital, inpatient use of high-cost medications, many of which are oncology medications, requires an approval process called second level review. This study seeks to quantify clinical and cost outcomes related to second level medications.

METHODOLOGY: This single center retrospective review was conducted at Duke University Hospital (DUH). Second level approval requests from 05/01/2017-04/30/2020 for oncology patients were reviewed. The primary endpoint was survival at 3 months post-initiation. Secondary endpoints included survival at 6 months, palliative care consultation rates and medication-related costs. The primary analysis was conducted on all patients included in the study using descriptive statistics.

RESULTS: A total of 98 patients were included in the analysis. The proportion of patients surviving at 3 months post-initiation was 71%. Survival at 6 months post-initiation was 61%. Palliative care consults or documented goals of care discussions were only accounted for in 40% of cases. The ratio of cost of pharmacy services billed to the patient's insurance compared to GPO cost was 4.8:1.

CONCLUSIONS: The study indicated high rates of patient survival post-discharge, though palliative care consultation rates were relatively low. Medication costs were high for both the patients and the institution.

https://duke.zoom.us/rec/share/WZEKLD1lxT1iDx5ntUBsTtJw5B7H4S4UpX4jR_LvAs-9BOSgdXBLy5V309uVnQ0P.OeKsC0PoWDR5lfgN?startTime=1618856997000

Presenters: Amanda (Mandie) Palcic

TITLE: Evaluation of Outcomes Following Conversion from Other Glucagon-Like-Peptide-1 Receptor Agonists (GLP-1 RAs) to Semaglutide in a VA Health Care System (VAHCS)

AUTHORS: Amanda Palcic, Rebecca Edwards and Camille Robinette

OBJECTIVE: Identify the incidence of diabetic retinopathy (DR) progression or associated complications in Veterans converted from other GLP-1 RAs to semaglutide

SELF ASSESSMENT QUESTION: Was DR progression seen in Veterans who were converted from other GLP-1 RAs to semaglutide?

BACKGROUND: Semaglutide became the preferred GLP-1 RA for the Salisbury VA Health Care System (SVAHCS) in 2018 but has been associated with DR complications. The purpose of this review was to evaluate the Veteran population in the SVAHCS and determine DR progression or other ophthalmic complications after conversion from other GLP-1 RAs to semaglutide.

METHODOLOGY: This was a retrospective quality improvement project. Eligible subjects included in this study were Veterans with a history of diabetic retinopathy converted from other GLP-1 RAs to semaglutide by a SVAHCS healthcare provider from October 1, 2018 to June 30th, 2019. The primary objective was to identify and evaluate progression of DR in Veterans converted to semaglutide. Secondary objectives included identifying the change in A1c and BMI in Veterans before and after semaglutide conversion, assessing the conversion dose of semaglutide, and determining the number of Veterans who discontinued semaglutide post-conversion and the rationale behind their discontinuation.

RESULTS: Of the 28 Veterans included, four Veterans experienced progression of their DR. One Veteran with DR progression experienced a complication. There were minimal differences in A1c and BMI pre- and post-conversion. Half of the Veterans were converted to semaglutide 0.5mg. Five Veterans discontinued semaglutide within 1 year of conversion, either due to gastrointestinal reasons or itching. Similar discontinuation rates for those re-titrated up from 0.25mg and those started at 0.5mg.

CONCLUSIONS: Most Veterans with a history of DR converted to semaglutide did not experience progression or complications of their DR. There was no difference in the number of Veterans who discontinued the medication based on whether they were re-titrated.

LINK: <https://youtu.be/uc0GuqdG-zA>

B IMPACT OF CLINICAL PHARMACY SPECIALISTS' INTERVENTIONS ON 30-DAY CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) READMISSION RATES IN A VETERAN POPULATION

Presenters: Jonathan Ennis

IMPACT OF CLINICAL PHARMACY SPECIALISTS' INTERVENTIONS ON 30-DAY CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) READMISSION RATES IN A VETERAN POPULATION

Authors: Jonathan S Ennis, Mary K Hall, Mary M McGill, Bridget G. Roop
Birmingham VA Health Care System - Birmingham, AL

Background/Purpose: Assess the impact of clinical pharmacy specialists' interventions on COPD 30-day readmission rates and improvements in symptom control in a veteran population.

Methodology: Eligible participants were those admitted and treated for a COPD exacerbation from 12/01/2020 to 02/28/2021. Patients were identified through both primary admission diagnosis and a COPD dashboard for exacerbations. Eligible patients were contacted via telephone after discharge by a pharmacy resident to assess symptom improvement, offer disease state counseling, and ensure appropriate inhaler compliance and technique. Issues that were identified were documented as recommendations for follow up. Follow up was offered to each participant with a clinical pharmacy specialist for medication management.

Results: Thirteen patients were included in this Quality Improvement project. Mean contact time post-discharge was 8 days. All patients included had educational interventions made that included information on proper use, dose, directions, administration, and adherence of inhaler devices for COPD. Nine patients were able to follow up with a clinical pharmacy specialist after discharge. Medication management interventions included refills, therapy additions, and adjustments of medications. We observed one COPD readmission within 30 days (1/13, 7.7%) and two additional COPD readmissions within 60 days (2/13, 15.4%). Three patients continued to follow up with the clinical pharmacy specialist and six patients were referred to pulmonology for outpatient follow up. Efforts to compare readmission rates from a previous quarter were unsuccessful due to unforeseen discrepancies in numbers that we could not attribute to our interventions alone.

Conclusions: Observations included significant patient unfamiliarity with COPD, inhaler administration, and adherence. Due to this, there may be further opportunity for pharmacists to provide education and ease transitions of care after patients are hospitalized for COPD exacerbations. Coordination between inpatient and outpatient services might be beneficial to ensure proper transitions of care for COPD patients. A structured follow-up process and longer service implementation would help fully evaluate the benefit and cost-effectiveness of this service.

Presentation Objective: Discuss educational and medication management interventions made through a pharmacy run COPD clinic for patients recently discharged for a primary COPD exacerbation.

Self Assessment: How can clinical pharmacists intervene and provide benefit in the care of patients with poorly managed COPD?

<https://vimeo.com/539280188>

Presenters: Tiera Williams

TITLE: Identifying Barriers to Under-vaccination in Community-Based Specialty Pharmacy

AUTHORS: Tiera Williams, Jennifer Elliot, Paige Brockington

OBJECTIVE: The objective of this research project is to identify barriers influencing under-vaccinated populations within the Walgreens Community-Based Specialty pharmacies in the metro Atlanta.

SELF ASSESSMENT QUESTION: What is one area of community pharmacy where pharmacists can effect patient willingness to accept vaccines?

BACKGROUND: Under vaccination can lead to the spread of communicable diseases and increase risk of morbidity and mortality in patients with chronic health conditions. Reasons for under-vaccination includes vaccine hesitancy, lack of awareness of the value of vaccines, and limited access to healthcare. Studies have shown that patient education and engagement strategies can increase vaccine uptake in at-risk patient populations. A large part of vaccine hesitancy is related to the lack of education and patient-outreach programs have proven to be a successful strategy in addressing this barrier and increasing vaccine uptake in high-risk patient populations.

METHODOLOGY: A telephone survey was used to collect patient demographics, identify possible sources of social detriments, barriers affecting willingness to receive flu vaccination, healthcare provider involvement in vaccine education, patient preference in receiving educational materials and current vaccination status. The study population consists of patients of Walgreens Community-Based Specialty pharmacies in the Metro Atlanta area, who receive routine refill and reassessment calls. Patients receiving a Limited Distribution Drug or specialty medication were contacted for initial therapy, reassessment or refill task calls and asked to participate in a survey following the call. Patients were identified for survey completion using home zip code as inclusion criteria. A statewide immunization registry, GRITS was used to verify immunization status or determine what vaccinations opportunities were available. Population demographics, including race, education level and income was obtained using Wolfram Alpha Computational Intelligence to evaluate community census information. Census data was then compared to survey data in an attempt to identify underrepresented populations who may be at risk for under-vaccination

RESULTS: This study is ongoing. To date, twelve patients meeting criteria were identified and assessed for barriers to vaccine uptake. Nine patients (75%) identified as Black/African American, representing a majority of patients surveyed. Six of the total patients surveyed (50%) reported not receiving the 2020-2021 flu vaccine. Three of the six unvaccinated patients (50%) reported lack of knowledge and distrust in the healthcare system as a barrier effecting their willingness to accept vaccines. Lack of recommendation and fear of adverse effects were both reported by two patients who also did not receive the 2020-2021 flu vaccine (33%).

CONCLUSIONS: We observed that lack of vaccine recommendations and limited patient knowledge regarding vaccines are the most apparent barriers to vaccine uptake. The pharmacist can play a continued role in increasing vaccine uptake by providing recommendations based on guideline schedules and thorough counseling regarding the benefit of vaccine uptake for patients at the point of care. In the future, this study can be used to identify personalized outreach programs for sub populations identified as under vaccinated with the goal of increasing vaccine uptake and long-term healthcare outcomes.

Presenters: Ashley Kamp

TITLE: Comparison of Intermittent Versus Continuous Infusion Antihypertensives in Ischemic Stroke

AUTHORS: Ashley Kamp, Wennie Huang, Timothy Lassiter, Shreyansh Shah, Beiyu Liu, Bridgette Kram

OBJECTIVE: Describe the effects of intermittent and continuous infusion antihypertensives on BP reduction and the time to alteplase administration in patients with acute ischemic stroke

BACKGROUND: Rapid control of elevated blood pressure (BP) is critical in the management of acute ischemic stroke. Consensus guidelines recommend a BP target <185/110 mmHg for patients eligible to receive thrombolytic therapy with intravenous alteplase. However, the optimal approach to BP management in acute ischemic stroke remains unclear.

METHODS: Patients ≥ 18 years admitted to the emergency department (ED) between September 1, 2013 and August 31, 2020 who received alteplase for acute ischemic stroke and required BP management with an intravenous antihypertensive were included in this multicenter, retrospective cohort study. Specific antihypertensives evaluated in this study included intermittent labetalol and hydralazine and continuous infusion nicardipine and clevidipine. Exclusion criteria were initial administration of a non-study antihypertensive, initial study antihypertensive administration following alteplase, administration of labetalol as a continuous infusion, or receipt of both an intermittent and continuous infusion antihypertensive prior to alteplase. The primary endpoint was the time from ED presentation to alteplase administration.

RESULTS: A total of 179 patients were included. Of these patients, 122 received an intermittent antihypertensive and 57 patients received a continuous infusion antihypertensive. The "door-to-needle" time was 53 minutes for patients who received an intermittent antihypertensive compared to 57 minutes for those who received a continuous infusion antihypertensive ($p=0.17$). The proportion of patients who achieved the BP target within 15 minutes of initial antihypertensive administration and the time from initial antihypertensive administration until the BP target was achieved were similar between treatment groups. In regard to safety, a greater proportion of patients in the continuous infusion antihypertensive group experienced hypotension, but there was no difference in the incidence of hemorrhagic conversion.

CONCLUSIONS: Intermittent antihypertensives appear to be comparably safe and effective to continuous infusion antihypertensives in patients with acute ischemic stroke and are less expensive.

SELF-ASSESSMENT QUESTION: True or False? Faster BP control has been identified as a potential strategy to reduce "door-to-needle" time, which is clinically relevant given the time-dependent benefits of alteplase on neurologic recovery.

LINK TO PRESENTATION: <https://www.youtube.com/watch?v=Ti9SCv6ERrM>

Presenters: Nisha Patel

TITLE: Low Dose Ketamine Use in the Emergency Department for Acute Pain Management

AUTHORS: Nisha Patel, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: List characteristics associated with a positive clinical response to LDK.

SELF ASSESSMENT QUESTION: Which of the following is an ideal candidate for LDK?

BACKGROUND: Opioid misuse in the United States remains a major issue causing thousands of deaths. Finding viable non-opioid alternatives for pain management is pertinent. Low dose ketamine (LDK) has been studied for its use as an analgesic in acute pain management in the emergency department (ED). Evaluating patients for a positive clinical response to LDK could help standardize the patient population that receives LDK in the ED at our institution. The objective of this study is to describe the use of ketamine as an analgesic in the ED-at our institution.

METHODOLOGY: A retrospective chart review was conducted for patients ≥ 18 years of age who received at least one dose of ketamine for an acute pain episode in the ED from January 2018 to December 2019. The primary endpoint was the amount of morphine milligram equivalents (MME) of opioids used with LDK. Univariate and multivariate logistic regression was used to determine characteristics associated with a positive clinical response to LDK (defined as a reduction in pain scores from baseline to second pain score within 60 minutes with absence of major adverse effects).

RESULTS: A total of 100 patients were included in this study. The median MME of opioids used with LDK was 5. There were 62% of patients with a positive clinical response to LDK and 4% experienced a major adverse event. Characteristics associated with a positive clinical response were weight < 85 kg ($p=0.018$) and administration of a subsequent dose ($p=0.012$).

CONCLUSIONS: In patients with an acute pain episode, MME of opioids used with LDK was low. Overall, LDK is safe and effective for use at 0.3 mg/kg in patients with an acute pain episode.

Videostream: <https://youtu.be/apWZlwapwUk>

Presenters: Audrey Wenski

TITLE: The impact of heparin initiation boluses on achieving targeted activated partial thromboplastin time (aPTT)

AUTHORS: Audrey Wenski, Chad Alligood

OBJECTIVE: Evaluate if heparin bolus infusions increase frequency of therapeutic aPTT levels within 24 hours.

SELF ASSESSMENT QUESTION: Do heparin boluses increase the probability of achieving targeted aPTT levels within 24 hours?

BACKGROUND: Patients with deep vein thrombosis (DVT), pulmonary embolisms (PE) or acute coronary syndrome (ACS) face higher mortality and rates of clot recurrence if left untreated. Anticoagulation reduces the risk of mortality. Current prescribing practices at Vidant Medical Center include frequently omitting heparin initiation boluses doses prior to continuous infusions. The purpose of this study was to evaluate the use of heparin boluses at a large academic medical center and determine if patients reached targeted aPTT levels more quickly when an initiation bolus was administered or if started on a maintenance infusion alone.

METHODOLOGY: This single center, retrospective review included adult patients who had received heparin infusions for DVT/PE or ACS from October 2019 to December 2019. Patients were excluded if they had an indication for heparin infusion other than DVT/PE or ACS, if appropriate laboratory data was not collected, or if patients had received alteplase therapy within 24 hours of heparin initiation. Data was obtained through electronic health record reports and the evaluation of patient medical records.

RESULTS & CONCLUSIONS: Time to targeted PTT within the first 24 hours was approximately 2 hours shorter for patients who did NOT receive an initiation bolus, although this may not be clinically significant. The Bolus group was more likely to be supratherapeutic at first PTT check and at 24 hours. Additionally, something to consider in the future would be alternative bolus dosing strategies in patients eligible for a bolus, particularly in those being treated for DVT/PE.

LINK TO PRESENTATION: <https://youtu.be/rhiC4DJ9qWQ>

I Predicted benefits of a 14-pathogen polymerase chain reaction assay compared to a standard diagnostic cascade of community acquired meningitis in a community health system

Room H

Presenters: Samantha Mayes

TITLE: Predicted benefits of a 14-pathogen polymerase chain reaction assay compared to a standard diagnostic cascade of community acquired meningitis in a community health system

AUTHORS: Samantha N. Mayes; Molly H. Thompson, Jacquelyn Bryant, Molly H. Bennett

OBJECTIVE: Identify opportunities for expedited diagnosis, definitive antimicrobial therapy, and reduced financial burden with meningitis/encephalitis (ME) PCR Panel implementation.

SELF ASSESSMENT QUESTION: What is one potential benefit of employing a meningitis/encephalitis PCR assay at a community hospital?

BACKGROUND: Meningitis and encephalitis are serious central nervous system infections caused by bacteria, viruses, or fungi. Rapid pathogen identification and definitive therapy reduces morbidity and mortality. Current diagnostic cascade involves provider-directed combination of on-site and send-out microbiologic cultures and polymerase chain reactions (PCRs). A PCR panel testing for 14 common meningitis/encephalitis pathogens, requiring 200 µl of cerebrospinal fluid (CSF) resulting in 1-2 hours is commercially available.

METHODOLOGY: This study was an IRB exempt, retrospective chart review of adult and pediatric patients with suspected ME and a CSF culture who were admitted to or received emergency department care at a multi-site community health system between June 2019 and December 2019. Data collected included demographic data, differential diagnoses, microbiologic tests, antimicrobial therapy and final diagnoses. Descriptive statistics were employed to analyze patient demographics and predicted outcomes. Primary outcome was a composite of potential benefit with the implementation of an ME PCR assay including reduction in time to definitive diagnosis, antimicrobial days of therapy and/or microbiologic testing.

RESULTS: 52 of 165 patients screened met inclusion criteria. Of those, 30 (57.7%) patients demonstrated opportunity for optimized care with implementation of ME PCR assay. 7 patients (23.3%) displayed opportunities for expedited positive pathogen identification. 17 patients (56.7%) would have had a final negative result within hours if ME PCR assay was employed, potentially eliminating up to 5 days of empiric therapy. There were opportunities for reduced anti-infective usage in 23 patients (76.7%) avoiding up to 2.25 antimicrobial therapy days.

CONCLUSIONS: Implementation of a ME PCR assay may expedite diagnosis, decrease time to definitive antimicrobial therapy, and reduce financial burden of meningitis/encephalitis to patients and health systems.

[Link to Presentation](#)

I Symptom Free Pee, Let It Be: Effect of a Microbiology Comment Nudge on Asymptomatic Bacteriuria

Room I

Presenters: Madeline Belk

TITLE: Symptom Free Pee, Let It Be: Effect of a Microbiology Comment Nudge on Asymptomatic Bacteriuria

AUTHORS: Madeline Belk, Taylor Steuber, Jonathan Edwards

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe how to create and implement a microbiology comment nudge as a means of reducing the inappropriate treatment of asymptomatic bacteriuria.

SELF ASSESSMENT QUESTION: When would you expect to see a microbiology comment nudge on a urine culture?
 a. A culture growing > 100,000 CFU of bacteria
 b. A culture growing < 100,000 CFU of bacteria
 c. A culture growing mixed urogenital flora
 d. A culture with no growth of bacteria

BACKGROUND: The presence of bacteria in the urine without symptoms of a urinary tract infection (UTI) is known as asymptomatic bacteriuria (ASB). It occurs in many patient populations, such as healthy female patients, and treatment is not warranted majority of the time per national guidelines. However, ASB is oftentimes treated and may lead to downstream consequences like antibiotic resistance and adverse drug events. In an effort to minimize treatment of ASB, the microbiology department and Antimicrobial Management Team (AMT) created a microbiology comment to prompt providers to assess for ASB in patients with positive urine cultures receiving antibiotics.

METHODOLOGY: This single-center, quasi-experimental study evaluated adult patients admitted to the hospital with a positive urine culture who received antibiotic treatment in the absence of signs and symptoms of a UTI. The primary endpoint assessed treatment of ASB with antibiotics before and after implementation of the microbiology comment on urine cultures. Data was analyzed from March 1, 2020-March 31, 2020 for the pre-intervention group and from March 1, 2021-March 31, 2021 for the post-intervention group. Education was provided through a recorded video and knowledge assessed by a pre-post survey. A chi-square test of independence was used to analyze the primary endpoint. Secondary endpoints compared antibiotics administered, duration of antibiotic therapy, and length of stay between groups.

RESULTS: 472 patients were screened, 34 patients were included in the pre-implementation group and 28 patients in the post-implementation group. Preliminary results show similar treatment rates of ASB between groups (22/34 (64.7%) vs 17/28 (60.7%), $p=0.796$). Patients in the post-implementation group showed a trend towards increased discontinuation of antibiotics after culture resulted (0% vs 27.8%, $p<0.05$), a reduction in antibiotics prescribed at discharge (32.4% vs 10.7%, $p=0.066$), and an improvement in symptom documentation (8.8% vs. 28.6%, $p=0.053$). Median days of therapy were similar between groups (6 (5, 8.5) vs 6 (3,8), $p=0.060$).

CONCLUSIONS: Preliminary results show that implementation of a microbiology comment nudge on urine cultures may improve the discontinuation of antibiotics after culture resulted, antibiotics prescribed at discharge, duration of therapy, and symptom documentation in the electronic health record.

L Impact of Pharmacist Involvement by Utilizing the 4Ts Score in the Clinical Assessment for Heparin-Induced Thrombocytopenia

Room E

Presenters: Robin Lonscak

TITLE: Impact of Pharmacist Involvement by Utilizing the 4Ts Score in the Clinical Assessment for Heparin-Induced Thrombocytopenia

AUTHORS: Robin C. Lonscak, Scott Camp, Thu-Kim Phan, Kerry Ward, Amanda Stankowitz

OBJECTIVE: Describe the potential impact of pharmacist intervention on laboratory testing for heparin-induced thrombocytopenia (HIT) by utilizing the 4Ts score.

SELF ASSESSMENT QUESTION: True or False? Pharmacists can utilize the 4Ts score to identify patients at low risk for HIT.

BACKGROUND: The 4Ts score is a validated clinical tool used to screen patients with suspicion of HIT. A low 4Ts score indicates a very low probability of HIT with a 99.8% negative predictive value. Testing is not recommended in patients with a low 4Ts score. The purpose of this project was to determine the clinical and financial impact of pharmacist involvement in utilizing the 4Ts score for HIT.

METHODOLOGY: Adult patients who received a platelet-factor 4 enzyme-linked immunosorbent assay (PF4-ELISA) from January 1, 2019 through December 31, 2019 were included. Patients with no documented heparin use or previous exposure to heparin were excluded. Chart review was conducted to calculate the 4Ts score for each patient utilizing data available at the time the ELISA was ordered. The primary outcome was the number of PF4-ELISA tests ordered in patients with low 4Ts scores. The secondary outcome was the potential cost-savings of pharmacist involvement by utilizing the 4Ts score prior to ordering PF4-ELISA tests.

RESULTS: Of the 340 patients receiving PF4-ELISA tests during the study period, 315 met inclusion criteria. There were 153 PF4-ELISA tests ordered for patients with a low 4Ts score and 163 for patients with an intermediate to high score. With a cost of \$221.40 per PF4-ELISA, pharmacist intervention could have saved \$33,874.20 in unnecessary testing expenses.

CONCLUSIONS: Pharmacist intervention utilizing the 4Ts score can prevent unnecessary laboratory testing and excess costs in patients with suspected HIT.

PRESENTATION LINK: https://youtu.be/UOK_-7DA6TQ

O ASSESSING THE IMPACT OF ONCOLOGY CLINICAL PHARMACY SERVICES ON CARBOPLATIN DOSING

Room A

Presenters: Justin Gruca

TITLE: Assessing the Impact of Oncology Clinical Pharmacy Services on Carboplatin Dosing

AUTHORS: Justin Gruca, Laura Beth Parsons, Danielle Dauchot, Belinda Li, Darby Siler, Rachel Matthews, Meredith McKean

OBJECTIVE: Define the Calvert formula and identify the minimum SCr value recommended by NCCN recommendations

SELF ASSESSMENT QUESTION: Per the NCCN recommendations: what should be the maximum creatine clearance value used in the Calvert formula? a)90 mL/min b)100 mL/min c)125 mL/min d)150 mL/min

BACKGROUND: The Gynecologic Oncology Group (GOG) and National Comprehensive Cancer Network (NCCN) have published recommendations to optimize carboplatin dosing. These guidelines specifically address weight (e.g., ideal vs. adjusted), minimum serum creatinine (SCr) values, and dose caps when using the Calvert formula.

Overdosing carboplatin can lead to toxicity, while under dosing can lead to inadequate treatment. Pharmacists can play a vital role in optimizing chemotherapy dosing. This study assesses the role of a medical oncology pharmacy specialist in carboplatin dosing

METHODOLOGY: This study was an IRB approved, single-center, retrospective study comparing the accuracy of carboplatin dosing with or without a medical oncology pharmacy specialist. This was divided into two cohorts: the pre-specialist cohort from December 1, 2015 and November 30, 2017 and post-specialist cohort from August 1, 2018 and July 31, 2020. Adult subjects were included if they were admitted and received at least one dose of carboplatin under the medical oncology or gynecologic-oncology service lines. Subjects were excluded if they were treated by a different service line or in the outpatient clinic. The primary objective was to assess whether the ordered carboplatin dose was within 5% of the calculated carboplatin dose following NCCN recommendations. Data was collected via electronic and paper medical records

RESULTS: To be presented

CONCLUSIONS: To be presented

Presentation Link: <https://youtu.be/M7SS6BwLwkU>

1 Incidence and Risk factors Associated with Antidepressant and Anxiolytic Use Following Kidney Transplant

Room F

Presenters: Aubrey Slaughter

TITLE: Incidence and Risk factors Associated with Antidepressant and Anxiolytic Use Following Kidney Transplant

AUTHORS: Aubrey Slaughter, Melissa Laub, Rachel Stephens, Joshua Clifton, Rajan Kapoor

OBJECTIVE: At the conclusion of my presentation, the participant will be able to assess the incidence of and risk factors associated with antidepressant and anxiolytic change after kidney transplant.

SELF ASSESSMENT QUESTION: What risk factors influenced an antidepressant and anxiolytic change after kidney transplant?

BACKGROUND: Psychosocial challenges are not uncommon after solid organ transplant. 50% of patients experience at least one episode of significant depression or anxiety within the first two years after transplant. Depressive and anxiety symptoms have an increased risk for negative outcomes, medication non-adherence, and higher rates of graft failure and/or mortality. Little evidence exists on the incidence of depression and anxiety post-transplant and the percent of patients taking medications for these indications. This study aims to determine the incidence of antidepressant and anxiolytic change within the first two years after kidney transplant.

METHODOLOGY: This is a single-site, retrospective chart review of patients age 18 years or older who received a kidney transplant at AU Medical Center between December 31, 2014 and December 31, 2017. Primary outcome is incidence of antidepressant and anxiolytic change within the first two years after transplant. Statistical methodology includes descriptive statistics for patient demographics and logistic regression to examine potential risk factors.

RESULTS: Of the 185 patients analyzed, 26 (14.1%) patients experienced a change in an antidepressant and/or anxiolytic within two years after their kidney transplantation. Risk factors associated with antidepressant change are female sex (OR 4.58, $p < 0.05$) and number of readmissions (OR 1.23, $p < 0.05$). Age was associated with an anxiolytic change (OR 0.97, $p < 0.05$).

CONCLUSIONS: Antidepressant and/or anxiolytic change within the first two years after transplantation occurred in over 10% of the patients; however, further studies need to evaluate potential risk factors associated with these changes.

Link to presentation: <https://youtu.be/XG373nSORrA>**B Evaluation of Pharmacist Impact on Use of Guideline Recommended Antidiabetic Therapies for Cardiovascular Risk Reduction in a High-Risk Patient Population**

Room K

Presenters: Matthew Holt

TITLE: Evaluation of Pharmacist Impact on Use of Guideline Recommended Antidiabetic Therapies for Cardiovascular Risk Reduction in a High-Risk Patient Population

AUTHORS: Matthew L. Holt, Jamie Crossman

OBJECTIVE: Discuss evidence regarding the benefits of GLP-1 receptor antagonists and SGLT2 inhibitors in patients with T2DM and ASCVD or risk factors for ASCVD.

SELF ASSESSMENT QUESTION: How does clinical pharmacist intervention affect prescribing of GLP-1 receptor antagonists and SGLT2 inhibitors in a patient population that has T2DM and significant cardiac risk?

BACKGROUND: Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of mortality in patients with type 2 diabetes mellitus (T2DM). SGLT2 inhibitors and GLP-1 agonists reduce the incidence of cardiac events, and guidelines recommend these agents be included in the current standard of care for patients with T2DM and ASCVD or risk factors for ASCVD. The purpose of this study is to evaluate the impact of a pharmacist on use of SGLT2 inhibitors and GLP-1 antagonists in patients with T2DM and ASCVD or with risk factors for ASCVD in our clinic.

METHODOLOGY: An IRB approved chart review of patients of a local clinic with T2DM and ASCVD or risk factors for ASCVD was conducted. Pharmacist intervention began with dissemination of education regarding available SGLT2 inhibitors and GLP-1 agonists, their respective Georgia Medicaid preferred status, and pertinent cardiovascular data. Patients' charts were screened to determine if they were candidates for an SGLT2 inhibitor or GLP-1 agonist. The patients' providers were notified if the patients were deemed candidates for an SGLT2 inhibitor or GLP-1 agonist via an electronic message. The primary outcome was change in patients having an SGLT2 inhibitor or GLP-1 antagonist included on their medication list after pharmacist intervention. Secondary outcomes included difference in prescribing at baseline between patients referred to a pharmacist for diabetes management and those who had not, percentage of providers who expressed significant barriers to prescribing SGLT2 inhibitors and GLP-1 receptor antagonists, and overall successful interventions to reduce cardiac risk.

RESULTS: In progress

CONCLUSIONS: In progress

B Pharmacist Outreach to Improve Appropriate Glucagon Prescribing in Diabetes Patients Being Treated with Rapid-Acting Insulin Room J

Presenters: Nakiya Whitfield

TITLE: Pharmacist Outreach to Improve Appropriate Glucagon Prescribing in Diabetes Patients Being Treated with Rapid-Acting Insulin

AUTHORS: Nakiya T. Whitfield; Ben Smith; Patrick Gregory; Susan Spratt; Beiyu Liu

OBJECTIVE: The primary objective was to compare the rate of glucagon prescribing between the Pharmacist Intervention and the Control group in the one month period following pharmacist-led provider outreach. The second objective was to examine prescribing patterns of glucagon, previous episodes of hypoglycemia, and to identify Type 1 patients with diabetes not under the care of an Endocrinologist.

SELF ASSESSMENT QUESTION: This study illustrated an increase in appropriate glucagon prescribing in the 1-month period following pharmacist outreach. True or False

BACKGROUND: Hypoglycemia is a common complication of type 1 and type 2 diabetes mellitus, and is a major limiting factor in the glycemic management of diabetes. Generally, patients using antidiabetic medications such as insulin or certain oral hypoglycemic agents are at increased risk for hypoglycemia. Additional risk factors for hypoglycemia include tight glycemic control, changes in diet or physical activity, renal disease, as well as extremes of age such as young children or older adults. If not recognized and acted upon, hypoglycemia can cause acute harm to those with diabetes or unintentionally others, especially if it causes accidents or other injuries. The American Diabetes Association (ADA) recommends glucagon to be prescribed for all individuals at increased risk of clinically significant hypoglycemia, particularly level 2 hypoglycemia, defined as blood glucose < 54 mg/dL.

Glucagon emergency injection kits are a resource used to manage hypoglycemia in the outpatient setting, and are carried by many emergency medical service providers, patients, family members, and other non-medical personnel. Due to the effectiveness and availability, glucagon emergency kits have been shown to reduce emergency department visits, and overall health care cost in addition to providing peace of mind to patients and caregivers. Despite these known benefits, glucagon continues to be under-prescribed. Although the exact cause is unknown, it is thought that glucagon under-use could be attributed to inadequate education of health care providers, patients, and caregivers. METHODOLOGY: This project was a prospective, double-arm, pre-post interventional study. Patients with a primary care provider (PCP) who are eligible for Duke Population Health Management Office (PHMO) services were initially identified. From this, the Duke PHMO analytics team then created a report which identified patients who were prescribed a rapid acting insulin and were not prescribed glucagon at baseline as potential subjects for this study. Patients were included in the study if they were prescribed a rapid acting insulin (insulin analogs, regular insulin AND mixes) and if they were ≥ 18 years of age. Patients were excluded from the study if they were deceased, under hospice care, had a documented allergy or hypersensitivity to glucagon, or if the patient was hospitalized at the time of outreach for any other condition other than hypoglycemia.

All eligible patients with an upcoming PCP or Endocrinology appointment between October 1st, 2020 and January 31st, 2021 were randomized into two groups: (1) Pharmacist intervention, and (2) No Pharmacist intervention. For both intervention and control groups, the pharmacist would review the chart before the appointment to confirm that the patient would be an appropriate glucagon candidate. The pharmacist intervention consisted of a communication encounter to the PCP or Endocrinologist to consider the addition of glucagon emergency kit through the electronic health record. An order for the glucagon emergency kit was also pended and routed to the provider along with the recommendation. This message was sent approximately two to five business days prior to an upcoming appointment. If requested by the provider, a pharmacist would also outreach to the patient to provide education on glucagon. Patients in the control group did not receive pharmacist intervention. One month after the scheduled appointment, follow up on the resulting glucagon prescription rates was documented and compared between groups.

RESULTS: Upon pharmacist outreach, 61 of 109 patients (56.0%) in the intervention group were prescribed a glucagon product within one month of their PCP or Endocrinology appointment. This was statistically significant (p-value <0.001) when compared to the glucagon prescribing rate within the control group, which had 1 in 113 patients (0.9%) prescribed a glucagon product within one month of their PCP or Endocrinology appointment

CONCLUSIONS: Pharmacist-led provider outreach prior to a PCP or Endocrinology appointment has a positive and significant impact on glucagon prescribing rates when comparing intervention and control groups.

YOUTUBE LINK: <https://youtu.be/LUXJxUWDi5Y>

C Dobutamine versus Milrinone in the Treatment of Cardiogenic Shock and/or Acute Decompensated Heart Failure

Room D

Presenters: Megan Morrow

TITLE: Dobutamine versus Milrinone in the Treatment of Cardiogenic Shock and/or Acute Decompensated Heart Failure

AUTHORS: Megan Morrow, Naadede Badger-Plange, Leah Cochran, Hanna Park, Disa Patel, Abigail Shell

OBJECTIVE: Determine if outcomes in patients with acute decompensated heart failure (ADHF) or cardiogenic shock (CGS) differ based on the inotropic agent administered.

SELF ASSESSMENT QUESTION: Are there differences between outcomes in patients with ADHF and/or CGS who were treated with dobutamine or milrinone?

BACKGROUND: Dobutamine and milrinone are routinely used in critically ill patients when treating low cardiac output states. However, primary literature comparing the two inotropes is sparse and inconclusive. The purpose of this study is to evaluate outcomes in patients with ADHF and/or CGS who were treated with dobutamine or milrinone.

METHODOLOGY: Adults admitted to Piedmont Atlanta Hospital's intensive care unit (ICU) with ADHF and/or CGS from January 2019-December 2020 who received either dobutamine or milrinone were randomly selected and evaluated via retrospective chart review. Thirty-eight patients were included in this study, nineteen in each group.

Exclusion criteria included patients on home dobutamine or milrinone, awaiting cardiac transplant, or receiving both inotropes during hospitalization. The primary endpoint was the requirement of advanced mechanical support.

Secondary endpoints included need for up-titration or addition of new vasopressor therapy, time on inotropes, ICU length of stay (LOS), renal replacement therapy (RRT), inotrope cost per hospitalization, and all-cause in-hospital mortality.

RESULTS: There was no significant difference between the dobutamine and milrinone groups, respectively, in requirement of advanced mechanical support (4 vs. 6 patients; $p=0.461$), addition or up-titration of vasopressors (13 vs. 12 patients; $p=0.732$), ICU-LOS (7.5 vs. 9.1 days; $p=0.460$) or inotrope cost per hospitalization (\$83.40 vs. \$99.10, $p=0.559$). There was a significant difference between groups regarding time on inotropes (3.2 vs. 6.6 days; $p=0.002$), RRT (11 vs. 5 patients, $p=0.049$), and all-cause in-hospital mortality (12 vs. 3 patients; $p=0.003$).

CONCLUSION: Based on this study, choosing one inotrope over the other has no clear impact on the requirement of advanced mechanical support in patients with ADHF or CGS.

Video link: <https://vimeo.com/539386382>

Y Impact of an Additional Pharmacist Phone Call on Retention of HIV Pre-Exposure Prophylaxis (PrEP) Patients in an Outpatient Specialty Pharmacy Program

Room G

Presenters: Sarah Corpening

TITLE: Impact of an Additional Pharmacist Phone Call on Retention of HIV Pre-Exposure Prophylaxis (PrEP) Patients in an Outpatient Specialty Pharmacy Program

AUTHORS: Sarah Corpening; Kiara Byrd-Glover; Katie Trotta; Mohamed Aboemeara; Erika Giblin

OBJECTIVE: Identify the barriers to clinical follow-up and monitoring for PrEP patients.

SELF ASSESSMENT QUESTION: How can pharmacists address lapses in therapy in PrEP patients?

BACKGROUND: Develop a service to increase patient retention in clinical management at an outpatient specialty pharmacy to prevent lapses in therapy for PrEP patients.

METHODOLOGY: Eligible patients ≥ 18 years of age receiving PrEP therapy from the study site enrolled in standard clinical counseling and monitoring during from September 2020 to March 2021 were included. A clinical pharmacist contacted each patient in the intervention group to confirm follow up clinical PrEP monitoring was complete or scheduled. This ensured a new PrEP prescription was received prior to the patient running out of medication. The pharmacist also assessed barriers to HIV testing, adherence, and PrEP continuation. Retention was determined by lack of lapse in therapy based on the initial prescription's final refill date and the written date of the new prescription.

RESULTS: In progress: Of the 117 patients screened, 69 were included in the control group and 60 in the intervention group. The data of all 69 patients of the control group was analyzed. At the time of data collection, only 41 patients in the intervention group were eligible for analysis. Based on preliminary data, 39 patients were retained in the control group (57%), and 29 patients have been retained post-intervention (71%). The most common barrier to retention is forgetfulness.

CONCLUSIONS: In progress: Preliminary data suggests an additional pharmacist call to ensure proper HIV screening in PrEP patients improves patient retention and decreases lapses in therapy. Patients who otherwise would have had the barrier of forgetfulness were reminded of required monitoring before running out of their prescription.

Presentation Access: <https://youtu.be/h9gw7AI7zTM>

R EVALUATION OF PHARMACIST RESPONSE ON DOOR-TO-NEEDLE TIMES DURING ACUTE ISCHEMIC STROKE

Room B

Presenters: Kayla Nguyen

TITLE: Evaluation of Pharmacist Response on Door-to-Needle Times During Code Stroke

AUTHORS: Kayla Nguyen, Erica Roman, Kim Heath, Rachel Hemberger, Tudy Hodgman

PRESENTATION OBJECTIVE: Identify potential benefits of pharmacist presence during the management of acute ischemic stroke.

SELF-ASSESSMENT QUESTION: According to previously published literature, what potential benefit is associated with pharmacist presence in the management of acute ischemic stroke?

BACKGROUND: Timely administration of alteplase for ischemic stroke is associated with improved outcomes.

Guidelines recommend a door-to-needle (DTN) time, defined as time from patient arrival to time of alteplase administration, of 60 minutes or less. It is reported that less than one-third of patients met this goal in 2011. Previous studies suggest pharmacist response during stroke management reduces DTN times. The purpose of this study is to evaluate the impact of pharmacist response during code strokes by comparing DTN times in those with and without pharmacist response.

METHODOLOGY: This was a retrospective cohort analysis of patients between 18 and 89 years of age who received alteplase for acute ischemic stroke. Patients were allocated based on location, which determined pharmacist response during the code stroke. The primary endpoint was DTN time. Secondary endpoints included proportion of patients with DTN times ≤ 60 , ≤ 45 , and ≤ 30 minutes; imaging-to-needle (ITN) time; appropriateness of alteplase dosing; and proportion of patients with scaled body weights prior to alteplase administration to ensure accurate dosing.

RESULTS: Median DTN times were similar between pharmacist response and no pharmacist response groups (34.0 minutes vs 38.0 minutes). More appropriate alteplase dosing and use of scaled body weights were observed in the pharmacist response group (87.5% vs 81.7% and 87.5% vs 65.0%, respectively). Statistical analyses were not performed due to small sample size.

CONCLUSION: Minimal difference in DTN times were observed; however, the pharmacist response group did trend towards increased alteplase dosing accuracy and appropriate use of body weights.

PRESENTATION LINK: https://youtu.be/nyx_yhJ5ExU

R Impact of Propofol on Vasopressor Use in Mechanically Ventilated Septic Patients

Room C

Presenters: Mya Baker

TITLE: Impact of Propofol on Vasopressor Use in Mechanically Ventilated Septic Patients

AUTHORS: Mya Baker, Brittany NeSmith, Rachel Langenderfer, Regan Porter

OBJECTIVE: Identify differences in vasopressor requirements and outcomes for mechanically ventilated sepsis patients sedated with CIV propofol versus CIV midazolam or dexmedetomidine.

SELF ASSESSMENT QUESTION: In this study does CIV propofol for sedation cause a higher incidence of hypotension requiring vasopressor support in mechanically ventilated septic patients?

BACKGROUND: According to PADIS guidelines, nonbenzodiazepine sedatives are preferred in critically ill, mechanically ventilated adults due to improved outcomes such as ICU length of stay, duration of ventilation, and delirium. Propofol may potentiate or worsen hypotension which may prompt providers to choose another agent for sedation. The purpose of this study is to compare incidence of vasopressor use in continuous intravenous (CIV) propofol versus other CIV agents when used for sedation.

METHODOLOGY: This study is a multi-center retrospective cohort chart review from June 2013 to June 2019. Inclusion criteria include age ≥ 18 years, intubation within 48 hours of admission, sepsis criteria met within 2 hours prior to intubation, and started on continuous infusion analgo-sedation within 4 hours of intubation. Patients were excluded if they were not septic 2 hours prior to intubation, met septic shock criteria before sedation, immunosuppressed, intubated before arrival, or had a vasopressor requirement of less than 2 hours. The primary objective of this study is to assess the incidence of vasopressor support in mechanically ventilated septic patients sedated CIV propofol versus CIV midazolam or dexmedetomidine. Secondary objectives include an absolute change in mean arterial pressure (MAP), a greater than 20% decrease in MAP from baseline, average maximum vasopressor infusion rates, duration of vasopressor use, time-to-vasopressor use, length of ICU stay, and in-hospital mortality.

RESULTS: There were 200 participants enrolled in the IRB approved study, 100 in each group. Vasopressors were used in 31% of patients in the CIV propofol group and 44% in the CIV non-propofol group ($P=0.06$). Average baseline MAP was 96 mmHg in the CIV propofol group and 99 mmHg in the CIV non-propofol group.

CONCLUSIONS: This retrospective chart review demonstrated a higher incidence of vasopressor use in patients sedated with either CIV midazolam or dexmedetomidine than those sedated with CIV propofol.

<https://youtu.be/iH3wkBbJU5I>

I **Evaluating the use of carbapenem-sparing regimens in Klebsiella pneumoniae and Escherichia coli that are resistant to piperacillin/tazobactam yet susceptible to ceftriaxone** Room I

Presenters: Maggie Raker

TITLE: Evaluating the use of carbapenem-sparing regimens in Klebsiella pneumoniae and Escherichia coli that are resistant to piperacillin/tazobactam yet susceptible to ceftriaxone

AUTHORS: Maggie Raker, Amy Taylor, Eric Shaw

OBJECTIVE: At the conclusion of my presentation, the participant will be able to evaluate the efficacy and safety of non-carbapenem antibiotic use in patients with Escherichia coli and Klebsiella pneumoniae resistant to piperacillin/tazobactam yet susceptible to ceftriaxone.

SELF ASSESSMENT QUESTION: Is it reasonable to use a non-carbapenem antibiotic in patients with the specified resistance pattern?

BACKGROUND: Gram negative bacilli are a common cause of hospitalizations with increasing antimicrobial resistance. Recently, a unique resistance pattern of piperacillin/tazobactam non-susceptible (P/T-NS), ceftriaxone susceptible (CTX-S) Escherichia coli (E. coli) and K. pneumoniae (KP) was identified at Memorial Health University Medical Center (MHUMC). The purpose of this study was to determine if P/T-NS, CTX-S E. Coli and KP can be effectively and safely treated with non-carbapenem therapies such as CTX.

METHODOLOGY: This study was a single-center, retrospective chart review approved by the IRB. Included patients were identified by all-site cultures of E. coli and KP organisms with P/T-NS, CTX-S isolates from January 1st, 2019 to June 30th, 2020. Study groups were selected by choice of directed therapy: carbapenem vs. non-carbapenem agents.

RESULTS: The population size of the groups was imbalanced: carbapenem treatment (n=2), non-carbapenem treatment (n=18). Since a majority of patients never met primary endpoint criteria of time to infection resolution, defined as WBC

I **Evaluation of Convalescent Plasma Transfusion for the Treatment of Covid-19** Room H

Presenters: My Hanh Duong

TITLE: Evaluation of Convalescent Plasma Transfusion for the Treatment of Covid-19

AUTHORS: My Hanh Duong, Hyeseung Kang

OBJECTIVE: Discuss the efficacy and safety of convalescent plasma for the treatment Covid-19 in adult patients.

SELF ASSESSMENT QUESTION: Does convalescent plasma transfusion provide mortality reduction in patients with Covid-19?

BACKGROUND: Coronavirus disease 2019 (COVID-19) is a viral respiratory infection caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Clinical manifestations of COVID-19 can range from mild, self-limiting respiratory tract illness to severe progressive pneumonia that can lead to death. Convalescent plasma transfusion (CPT), a type of passive immunotherapy, is the transfer of antibodies from recovered donors in the form of plasma serum to help confer immunity in sick patients. In April 2020, FDA authorized the expanded access program for CPT to be used for the treatment of Covid-19. The aim of this study is to determine if CPT was an effective and safe COVID-19 treatment for patients who were admitted to our hospital.

METHODOLOGY: This is a single-center, retrospective chart review on COVID-19 patients who were admitted to Wellstar North Fulton from May 1st, 2020 to August 25th, 2020. A drug utilization report will be used to identify patients who received CPT for the treatment of COVID-19. Data will be collected and analyzed in a password-protected Microsoft Excel.

RESULTS: 4 patients in CPT group and 3 patients in non-CPT group died within 28 days of hospital admission. CPT group had a lower risk of 28-day-all-cause mortality, 8.9% vs 23% (RR=0.39, 95% CI 0.73 – 2.95). CPT showed less clinical improvement within 28 days, 53% vs 62% (RR=0.87, 95% 1.8 – 3.08). There was no significant adverse events from CPT

CONCLUSIONS: •CPT was not associated with a significant reduction in 28-day-all-cause mortality. It was associated with a lower rate of clinical improvement. It was well-tolerated by all patients who received it

Presenters: Sydney Madison

TITLE: Impact of Inpatient Order Panels on Direct Oral Anticoagulant Prescribing

AUTHORS: Sydney Madison, Sarah Berardi, Megan Jaynes, Bob Lobo, Colleen Morton

OBJECTIVE: Describe the effectiveness of implementation of clinical decision support on DOAC prescribing patterns.

SELF ASSESSMENT QUESTION: : True or False: DOAC dosing must be adjusted based on patient-specific factors, such as renal function, hepatic function, and indication.

BACKGROUND: Utilization of direct oral anticoagulants (DOACs) has increased dramatically over the last several years. Recommended dosing strategies for DOACs vary greatly depending on indication and other patient-specific factors; as a result, DOAC dosing errors are common, which may be associated with an increased incidence of adverse events. To improve prescribing patterns at our institution, clinical decision support was developed to guide dosing based on patient specific factors. The purpose of this study was to evaluate the effectiveness of this order panel on DOAC prescribing patterns at our institution.

METHODOLOGY: This study was a retrospective chart review and analysis of patients at Vanderbilt University Medical Center. Patients were classified into pre-panel implementation (control) and post- implementation (intervention) groups The primary endpoint of this study was the percentage of patients who were ordered the appropriate DOAC dose for the given indication, renal function, and hepatic function. Secondary outcomes included incidence of stroke, venous thromboembolism, or major bleeding during the index hospitalization.

RESULTS: In progress

CONCLUSIONS: In progress

VIDEO LINK: <https://youtu.be/V9HpktNi4oY>

Presenters: Christine Hanna

TITLE: Impact on 30-day readmissions in patients enrolled in a Meds to Beds Program: a collaboration between a hospital and independent pharmacy

AUTHORS: Christine Barjoud Hanna, Maria M Thurston, Teresa Pounds, Pamela Moye-Dickerson

OBJECTIVE: Evaluate the impact of a Meds to Beds program on 30-day readmissions in high readmission risk patients

SELF ASSESSMENT QUESTION: What is a pharmacist's role in a Meds to Beds Program?

BACKGROUND: Evaluate the impact of a Meds to Beds program on 30-day readmissions in high readmission risk patients

METHODOLOGY: This is a retrospective study designed to compare all-cause 30-day readmission rates in adult patients with CHF, COPD, AMI, or pneumonia who enrolled in a medication bedside delivery program to patients who did not enroll from November 2019 to November 2020. To identify medication-related readmissions, the electronic medical record was reviewed to identify medication therapy problems (MTP) using the Pharmacy Quality Alliance's MTP Categories.

RESULTS: 158 patients enrolled in the Meds to Beds Program during the study period. 58 patients in the Meds to Beds group met inclusion criteria. 129 patients were randomly selected for the control group. Eight patients were readmitted (13.8%) within 30 days from the Meds to Beds group and thirteen patients (10%) from the control group (pvalue = 0.081). Two patients had a medication-related readmission in the Meds to Beds group in the category of adverse drug reaction and adherence, and two patients in the control group in the category of adherence and needs additional medication therapy.

CONCLUSIONS: Previous evidence shows readmissions are higher for patients with the studied disease states and readmission risks are multifactorial. Although our results found there was no difference in all-cause 30-day readmission rates in the studied disease states who enrolled in a medication bedside delivery program to patients who did not enroll, we still believe there is an opportunity for pharmacists to intervene at the point of discharge and conduct medication reconciliations and counseling to better advance transitions of care and reduce hospital readmissions. A randomized control study is warranted to prove the relationship between a Meds to Beds Program and 30-day readmission rates.

Presenters: Lauren Cimino

TITLE: Assessing the Need for Insulin Pump and Continuous Glucose Monitoring (CGM) Education
AUTHORS: Lauren H. Cimino, Melanie Manis, B. DeeAnn Dugan, Stephen A. Brown, Timothy Garrett
OBJECTIVE: At the conclusion of this presentation, the participant will be able to identify the need for future education and training on insulin pumps and continuous glucose monitoring (CGM) systems within Alabama pharmacists.
SELF ASSESSMENT QUESTION: True or False: Most survey participants reported little to no experience with insulin pumps and/or CGMs.

BACKGROUND: In 2018, it was estimated that 34.2 million people of all ages in the United States had diabetes. Studies have shown that the use of insulin pumps and continuous glucose monitoring (CGM) systems improve glycemic control and reduce the risk for hypoglycemic episodes in both Type 1 and Type 2 diabetics. The use of insulin pumps in Type 1 diabetes patients has drastically increased, as well as CGM use. One study has shown improved glycemic control when pharmacists are involved, but unfortunately there is limited pharmacist education in this area.

METHODOLOGY: This prospective, cross-sectional study used an anonymous, electronic 31-question survey that was distributed via five Alabama organizational listservs. Data collected included practice site, frequency of diabetes management, familiarity with insulin pumps and CGMs, certificate program completion, confidence levels, and assessment questions. Descriptive statistics were used to depict collected data. IRB approval was obtained from Samford University.

RESULTS: Of 466 participants, 352 were eligible to participate (77%), and 291 eligible patients completed the survey (83%). When surveyed about insulin pump and CGM confidence, most selected they do not feel confident in any area. Only 31% of surveyed practice sites have Diabetes Self-Management Education (DSME) accreditation. The vast majority (93-94%) stated they would be interested in completing CE about insulin pumps and CGMs. Participants would prefer a webinar or certificate-based program for education.

CONCLUSIONS: As insulin pumps and CGMs become more common in patients with type 1 and type 2 diabetes mellitus, many Alabama pharmacists have expressed the need and desire for further education with these devices. Next steps include the development of a webinar or certificate-based program to meet this need.

<https://samford.instructuremedia.com/embed/4ea2203f-b472-4a1e-afcf-637eb07d18a5>

TREATMENT IN A VETERAN POPULATION

Presenters: Courtney Lee

TITLE: EVALUATION OF OUTPATIENT PROVIDER MONITORING FOR ALCOHOL USE DISORDER (AUD)
TREATMENT IN A VETERAN POPULATION

AUTHORS: Courtney Lee, Lizmarie Aviles-Gonzalez

OBJECTIVE: Identify appropriate outpatient monitoring and pharmacotherapy for Alcohol Use Disorder (AUD).

SELF ASSESSMENT QUESTION: Is there a potential role for pharmacists as outpatient providers for patients with AUD on pharmacotherapy based on results of this project?

BACKGROUND: Evaluate outpatient provider monitoring for patients diagnosed with Alcohol Use Disorder (AUD) in a veteran population to compare medication monitoring and treatment progress among non-pharmacist and pharmacist outpatient providers.

METHODOLOGY: Eligible participants were those diagnosed with AUD currently on pharmacotherapy and being followed by an outpatient provider from 01/01/2020 to 12/31/2020. Patients were identified through the Veteran's Affairs AUD dashboard for pharmacotherapy monitoring, and patients monitored by a pharmacist-led outpatient AUD pilot program in the Primary Care setting. A chart review was conducted to assess baseline AUDIT-C score, changes in alcohol intake, adherence, dose adjustments, and adverse drug reactions related to gabapentin, naltrexone, acamprosate, disulfiram, and topiramate. Data was reviewed through means of pre-data for patients with non-pharmacist providers and post-data including patients with a pharmacist as the outpatient provider to determine differences in appropriateness of AUD therapy monitoring and treatment progress among patients with different providers.

RESULTS: Research completion yielded a total of 20 patients for pre-data results and 1 patient total for post-data results in the quality improvement project. Most frequent pharmacotherapy used was naltrexone mostly prescribed by the Mental Health service line.

CONCLUSIONS: Changes in alcohol intake and adherence were not addressed in several patients in the pre-data results. More post-data is needed for future comparison of outpatient providers and relation to treatment progress. There may be a role for pharmacists as outpatient providers for AUD monitoring in veteran populations.

Link to presentation stream: <https://vimeo.com/539195965>

C TIMing Evaluation of the Initiation of Thiazide-type diuretics (TIME-IT) for sequential nephron blockade

Room D

Presenters: Andrew Johnson

TITLE: TIMing Evaluation of the Initiation of Thiazide-type diuretics (TIME-IT) for sequential nephron blockade

AUTHORS: Andrew Johnson, Kayla Nichols, Stuart Hurst

OBJECTIVE: Evaluate the difference in 6-hour urine output when thiazide-type diuretics are administered prior to versus concurrently with intravenous loop diuretics.

SELF ASSESSMENT QUESTION: Is there a difference in 6-hour urine output when thiazide-type diuretics are administered ≥ 25 minutes versus < 25 minutes prior to loop diuretics?

BACKGROUND: Sequential nephron blockade combats loop diuretic resistance. Administration of the thiazide-type diuretic 30 minutes before the loop diuretic theoretically optimizes the agents' pharmacokinetic relationship. However, evidence detailing safety and efficacy regarding this timing strategy is lacking. This study evaluated the optimal temporal relationship of thiazide-type and loop diuretic administration in the implementation of sequential nephron blockade.

METHODS: This was a single-center retrospective crossover study evaluating patients hospitalized with acute decompensated heart failure, categorized as loop diuretic resistant, and administered sequential nephron blockade at least twice. Each patient received a thiazide-type diuretic ≥ 25 minutes and < 25 minutes prior to an intravenous loop diuretic. The primary outcome was to compare 6-hour total urine output between each timing strategy. Secondary outcomes were to compare 6-hour total urine output in patients receiving exclusively metolazone or chlorothiazide, 6-hour hourly urine output, hypokalemia, hypomagnesemia, hyponatremia, and hypotension between each timing strategy.RESULTS: Seventy-nine patients were included. Six-hour total urine output when the thiazide-type diuretic was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic was 1,381.8mL versus 1,309.9mL, respectively ($p=0.38$). In metolazone-treated patients, 6-hour total urine output when metolazone was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic was 1,929mL versus 897.5mL, respectively ($p=0.13$). There were no differences in 6-hour hourly urine output or safety outcomes.CONCLUSIONS: There were no significant differences in 6-hour urine output when the thiazide-type diuretic was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic. A numerically larger but non-statistically significant 6-hour urine output difference between groups was demonstrated in patients receiving exclusively metolazone.<https://youtu.be/vG7PpeAAXGQ>**R Dexmedetomidine to facilitate successful extubation in agitated mechanically ventilated patients**

Room C

Presenters: Jenna Sorgenfrei

TITLE: Dexmedetomidine to facilitate successful extubation in agitated mechanically ventilated patients

AUTHORS: Jenna Sorgenfrei, Kristin Welborn, Alex Ewing, Michael Wagner

OBJECTIVE: Determine if dexmedetomidine helps facilitate extubation in agitated mechanically ventilated patients

SELF ASSESSMENT QUESTION: What is the most common adverse effect of dexmedetomidine?

BACKGROUND: Agitation and delirium are common consequences that lead to poorer outcomes in the intensive care unit (ICU). In patients with delirious agitation, weaning sedatives to facilitate extubation is inversely complicated by increasing agitation, making extubation unsafe or unsuccessful. Dexmedetomidine is potentially advantageous as it provides a bridge to extubation while avoiding increasing agitation, but there is limited evidence supporting its effectiveness.

METHODOLOGY: A single-center institutional review board-approved retrospective chart review was conducted on agitated ventilated ICU patients receiving the ICU sedation protocol with or without the use of dexmedetomidine in the 24 hours leading up to extubation between August 2017 and September 2020. The primary outcome was ventilator free hours in the 7 days after first extubation attempt. Secondary outcomes included hospital and ICU length of stay, ICU mortality, and incidence of bradycardia or hypotension.

RESULTS: A total of 200 patients were included, with 100 in the dexmedetomidine group and 100 in the control group. Average ventilator free hours in dexmedetomidine and control group were 153 and 139 hours, respectively ($p = 0.058$). There was a significantly longer ICU length of stay ($p = 0.004$) and hospital length of stay ($p = 0.007$) in the dexmedetomidine group, with no difference in ICU mortality ($p = 1.0$).

CONCLUSIONS: There was no significant difference in ventilator free hours when dexmedetomidine was added to the ICU sedation protocol, and patients in the dexmedetomidine group had a significantly longer ICU and hospital length of stay as compared to the control group. However, a large prospective trial is still needed to determine if there is any utility in dexmedetomidine use in ventilated patients with delirious agitation.

PRESENTATION: https://youtu.be/L7mtfVrO_b8

Presenters: Taylor Odom

TITLE: Perception of pediatric and neonatal emergency preparedness across a community hospital health system

AUTHORS: Taylor Odom, PharmD; Amanda Williams, PharmD, BCPS, BCPPS; Elizabeth Ezell, PharmD; Nichole Moore, PharmD

OBJECTIVE: This study is conducted to increase the ability of healthcare providers to provide neonatal and pediatric care in emergency situations by providing education regarding the processes of effectively preparing and administering medications to infants and children.

SELF ASSESSMENT QUESTION: What is the difference in the confidence of healthcare providers before and after education is provided regarding the preparation and administration of medications to pediatric and neonatal patients during cardiopulmonary resuscitation?

BACKGROUND: Providers in health systems that predominantly treat adult patients are often less familiar with the orientation of pediatric emergency kits and neonatal crash carts, which can lead to a delay in the initiation of care, as well as increase the risk of medication administration mistakes. This study is conducted to increase the ability of healthcare providers to provide neonatal and pediatric care in emergency situations by providing education regarding the processes of effectively preparing and administering medications to infants and children.

METHODOLOGY: Nurses, providers, and pharmacists who primarily prepare and administer emergency medications used in pediatric emergency kits and neonatal crash carts were identified for the survey. Survey results will be anonymously submitted. Healthcare provider's perception of the health system's emergency preparedness will be determined, as well as gaps in knowledge regarding crash cart orientation and emergency medication dosing, based on these survey results. Education will then be provided through the completion of an online video module. Healthcare providers will be re-surveyed after participation in the education simulation to assess improvement in their ability to efficiently, safely, and effectively provide emergency care to pediatric and neonatal patients.

RESULTS: In process

CONCLUSIONS: In process

I Comparing outcomes of MRSA-related infections treated with vancomycin when utilizing a one level only calculator targeting AUC compared to targeting higher troughs alone.

Presenters: Caroline Hansford

TITLE: Comparing outcomes of MRSA-related infections treated with vancomycin when utilizing a one level only calculator targeting AUC compared to targeting higher troughs alone.

AUTHORS: Caroline Hansford, Tiffany Goolsby

OBJECTIVE: At the conclusion of my presentation, the participant will be able to evaluate therapeutic failure and acute kidney injury in patients with MRSA infections on vancomycin that were dosed based on the new AUC goals utilizing a single level calculator compared to those dosed based on higher trough goals prior to guideline changes

SELF ASSESSMENT QUESTION: True or False. It is recommended to target AUC/MIC for all indications when dosing Vancomycin.

BACKGROUND: In 2020, guidelines on vancomycin dosing were updated recommending AUC targets over troughs due to decreased nephrotoxicity without compromising efficacy. Overtime, AUC pharmacokinetic equations have been simplified and the guidelines recommend using two levels to determine AUC. In clinical practice, our institution began utilizing a single level steady state calculator to determine AUC in 2019. Our study assessed vancomycin dosing and compared the rates of treatment failure and Acute Kidney Injury (AKI) in patients being treated with vancomycin for MRSA-related infections, with targeting an AUC/MIC 400-600 and troughs of 10-20 mcg/dL with a trough-only based calculator compared to targeting a trough of 15-20 mcg/dL only.

METHODOLOGY: retrospective chart review was performed on patients at the AVAMC who were initiated on vancomycin for a documented MRSA-related infection and achieved a steady-state level before January 2019 (pre-guideline change) and January 2019 and beyond (post-guideline change) to assess treatment failure, AKI, trough and AUC. AUC was calculated based on the first steady state trough level utilizing the trough-only AUC calculator on vancopk.com.

RESULTS: Overall, there were no treatment failures documented in either group. However, there were 4 deaths in the pre-intervention group vs the post intervention group. The rates of AKI were 7/100 (7%) in the pre-intervention group vs 4/53 (8%) in the post intervention group. The average steady-state trough and AUC was 16 vs 10.8 mg/dL and AUC 803 vs 429 in the pre-intervention and post intervention group respectively. A secondary analysis was performed to fully evaluate our primary and secondary outcomes. We found that in patients that developed AKIs in our pre-intervention group 86% were also on concomitant therapy with piperacillin/tazobactam, and the average subsequent trough calculated was 13.2 mcg/dL. In those that developed AKI in the post-intervention group 75% were on concomitant therapy with piperacillin/tazobactam, and the average subsequent trough calculated was 14.7 mcg/dL.

CONCLUSIONS: Targeting AUC with a vancomycin trough only calculator versus targeting higher vancomycin trough goals was not associated with increased treatment failure or a significant difference in AKI at our institution. We did observe a lower average trough and AUC compared to trough-only dosing, but our results did not demonstrate AUC monitoring was associated less AKI. The lack of difference in AKI may have been confounded by co-administration with piperacillin/tazobactam as well as our small sample size, and further investigation is needed.

https://static.sched.com/hosted_files/2021southeasternresidency/ed/Hansford.mp4

I The Impact of Select Medication Classes Taken Prior to Hospital Admission on Mortality and Morbidity in COVID-19 Patients

Presenters: Danielle Casaus

TITLE: The Impact of Select Medication Classes Taken Prior to Hospital Admission on Mortality and Morbidity in COVID-19 Patients

AUTHORS: Danielle Casaus, John Boreyko, Rachel Toler, Julie Thompson, Andrew Darkow

OBJECTIVE: Identify whether select medication classes taken prior to hospital admission are associated with a difference in mortality and morbidity in COVID-19 patients.

SELF ASSESSMENT QUESTION: Did any of the select medication classes have an associated difference in regards to mortality or morbidity in COVID-19 patients?

BACKGROUND: Since the beginning of the Novel Coronavirus 2019 (COVID-19) pandemic, many theories have been generated on the impact several medication classes may have on COVID-19 infections. These classes include both prescription and over-the-counter medications taken in an outpatient setting.

METHODOLOGY: This study was a multi-center, retrospective, observational case-control study within an academic health system that included patients 18 years of age or older with a positive inpatient COVID-19 polymerase chain reaction (PCR) between March 15, 2020 and September 30, 2020. The medication classes evaluated in this study included: angiotensin converting enzyme (ACE) inhibitors/angiotensin receptor blockers, histamine 2 receptor antagonists (H2RAs), proton pump inhibitors, melatonin, anticoagulants, and antiplatelet agents. Patients were categorized based on whether they were taking a medication from each class prior to their hospital admission, with each medication class evaluated separately. The primary endpoint was the difference in hospital mortality between each group. Secondary endpoints included need for intensive care unit admission, hospitalization for greater than 8 days, and need for 6 or more liters of oxygen during hospitalization.

RESULTS: ACE inhibitors were the only medication class that met statistical significance for increased hospital mortality, ICU admissions, and need for 6 or more liters of oxygen. None of the studied medication classes were significant for hospitalization for greater than 8 days. ACE inhibitors were evaluated using a regression model, which only found a statistically significant difference in increased ICU admissions and need for 6 or more liters of oxygen.

CONCLUSIONS: Based on our results, ACE inhibitors may negatively impact mortality and morbidity in COVID19 patients.

Presenters: Haley Hubbard

TITLE: Evaluation of dexamethasone use in patients with diabetes for postoperative nausea and vomiting (PONV)

Link of visual presentation (if needed): <https://vimeo.com/538968896>

AUTHORS: Haley Hubbard, PharmD; Lauren Whitfield, PharmD; AR Campbell, PharmD, BCPS, Stephanie Smith, PharmD, BCCCP, Sara Velky PA-C, Katherine Johnson, MD

OBJECTIVE: Evaluate the use of dexamethasone in patients with diabetes, effects on glycemic control within a 24-hour postoperative period, and its impact on length of stay.

SELF ASSESSMENT QUESTION: What is the hypothesized mechanism of action of the anti-emetic effect of dexamethasone?

BACKGROUND: The underlying mechanisms of hyperglycemia in a postoperative setting and its relationship to poor outcomes is not completely understood. Corticosteroids are inherently associated with hyperglycemia and per the 2014 Anesthesiology guidelines for the management of PONV, dexamethasone is used as an alternative and adjunct agent to ondansetron. Data may also support the use of dexamethasone in a perioperative setting for the following benefits: reduction of opioid consumption and surgery-related inflammation.

METHODOLOGY: A retrospective chart review will be conducted on patients with diabetes who received at least one dose of dexamethasone, ondansetron, or both. Data will be collected through an EPIC-generated report that includes patients with diabetes (Type 1 and Type 2), who are ≥ 18 years of age, admitted to the surgical floors of a 322-bed hospital, received a dose of dexamethasone, ondansetron, or both for PONV. Patients will be excluded if they underwent an emergent cardiovascular-related or standard neurological-related surgical procedure, were SARS-CoV-2 positive while undergoing the procedure, part of a vulnerable population, had a current infection, or received steroids chronically. The drug, dose, time of administration, and blood glucose levels will be collected using the EMR. The primary outcome measure is to determine the relationship between the dose of dexamethasone administered and subsequent increase in blood glucose levels. Secondary outcomes will include length of stay, achievement of glycemic control as recommended by the SCIP guidelines as < 180 mg/dL or > 200 mg/dL within the first 24-hours after surgery, type of surgical procedure, occurrence of PONV, type of anesthesia used at induction, amount of corrective insulin used, postoperative opioid use and pain management, surgical-site infections, and its overall effect on patient's quality of care.

RESULTS: Total of 106 patients included in the retrospective chart review. Dexamethasone + ondansetron (n=59) vs. ondansetron monotherapy (n=47) showed no significant difference between the two groups for the occurrences of a BGL > 180 mg/dL 24-hours of the surgical procedure. Secondary outcomes were not significantly different with length of stay, opioid consumption, and insulin use. There was no documented occurrences of surgical site infections or PONV with either therapy.

CONCLUSIONS: Patients who received dexamethasone + ondansetron at induction of anesthesia had a shorter length of stay when compared to those who just received ondansetron – especially in the orthopedic surgeries and some abdominal surgeries. A total of 106 patients were evaluated, there was no statistical significance in the study's primary or secondary outcomes between the two groups of patients.

P The pharmacist's role in the development of a long-acting injectable antipsychotic clinic at a Veterans Affairs Medical Center

Room G

Presenters: Amber Brewer

TITLE: The pharmacist's role in the development of a long-acting injectable antipsychotic clinic at a Veterans Affairs Medical Center

AUTHORS: T. Amber Brewer; Brooke Butler; Meredith Blalock.

OBJECTIVE: Define the role a pharmacist can have in a long-acting injectable antipsychotic clinic.

SELF ASSESSMENT QUESTION: What is the recommended timeframe for conducting AIMS assessments in patients at high risk for movement adverse effects?

BACKGROUND: The use of long-acting injectable antipsychotics (LAIAs) is associated with increased medication adherence and reduced relapse rates in patients with mental health disorders. However, LAIAs require frequent monitoring and may contribute to metabolic and movement disturbances. The psychiatric pharmacist is trained to monitor LAIAs. Currently, there is no formal process to monitor Veterans receiving long-acting injectable antipsychotics (LAIs) our VA Medical Center or its associated clinics. At the start of the study 38 veterans were prescribed an LAIA. Of these, 7 (18.4%) were overdue for metabolic labs and 25 (65.8%) were overdue for Abnormal Involuntary Movement Scale (AIMS) and waist circumference assessments at the beginning of this project. The goals of this project are to establish a psychiatric pharmacist-led LAIA clinic, streamline the monitoring and ordering process for LAIAs, and improve to improve treatment outcomes for patients receiving LAIAs.

METHODOLOGY: An initial chart review was conducted in September 2020 to determine the total number of veterans receiving an LAIA, adherence rates, and assess monitoring compliance per institutional policy. A proposal outlining the purpose, methods, and timeline of introducing a pharmacist-led LAIA outpatient clinic was presented by the lead investigator and approved by the Pharmacist and Therapeutics Committee. Individual chart reviews were completed on all patients prescribed a long-acting injectable antipsychotic to document monitoring. Prescribing provider and nursing were tagged on notes to alert to actionable patient. Pharmacist worked with nursing to coordinate lab draws, AIMS assessments, and vital sign collections. The intervention period was 7 months, during which the goal was to increase the following by at least 20%: Metabolic laboratory monitoring, Abnormal Involuntary Movement Screenings (AIMS), waist circumference assessments, and vital signs.

RESULTS: Currently as of April 2021, there are 45 patients receiving LAIAs at the Dublin VAMC. Of these, 5 (11.1%) were overdue for metabolic labs, 8 (17.8%) were overdue for Abnormal Involuntary Movement Scale (AIMS) and 17 (37.8%) were overdue for waist circumference assessments.

CONCLUSIONS: The mental health pharmacist can play an important role in a long-acting injectable antipsychotic clinic.

T Impact of Transitional Care and Pharmacy Interventions for Patients Receiving Rifaximin at a Large Academic Medical Center

Room A

Presenters: Mary Pat Holder

TITLE: Impact of Transitional Care and Pharmacy Interventions for Patients Receiving Rifaximin at a Large Academic Medical Center

AUTHORS: Mary Pat Holder, Ginny Tyler Meadows, DeAnn Jones, Steven Lawley, Meagan Fowler

OBJECTIVE: Discuss ways to improve patient care and reduce readmissions for those receiving specialty medications through transitional care at UAB.

SELF ASSESSMENT QUESTION: From the findings of this study, what are ways transitional care services can benefit patients requiring specialty medications?

BACKGROUND: Transitional care has become an important aspect of providing safe, quality, and efficient healthcare to patients. Without appropriate coordination, the transition from inpatient to outpatient setting may result in medication errors or adherence issues. Rifaximin is commonly initiated while inpatient with the intent to continue treatment at discharge. The nature and specialty classification of rifaximin often leads to problems with insurance approval, prescription affordability, dispensing delays, compliance, and acute worsening of disease.

METHODOLOGY: This study included a prospective observation of patients prescribed rifaximin over a 3-month time frame utilizing a new electronic order set encouraging use of onsite specialty pharmacy for benefits investigation, as well as a retrospective chart review over 12 months as the comparator group. The primary objective was to determine the time to fill the medication from the outpatient pharmacy prior to discharge. The secondary objectives evaluated adherence, readmissions due to HE in a 3-month time period, and cost saving opportunities.

RESULTS: Of the 131 patients included, 69 were retrospective review patients and 62 were prospective review patients. A total of 66 patients (50%) appropriately filled the prescription post-discharge with an average time to fill of 6 days. Medication adherence from initial fill date included 17 of 69 patients (25%) in the retrospective group and 19 of 62 patients (31%) in the prospective group. Readmissions included 45 of 131 patients (34%) within 3 months.

CONCLUSIONS: While not statistically significant, incorporation of the new electronic order set within the prospective group may have improved time to fill for rifaximin. Readmission rates remained similar between retrospective and prospective groups. Given this data, patient outcomes may improve with coordinated management between inpatient and outpatient teams.

AUDIOVISUAL PRESENTATION: <https://youtu.be/peAph3UAHYw>

Presenters: Rachel Stogner

TITLE: Improving Medical Center Compliance with Dose Error Reduction System (DERS)

AUTHORS: Rachel Stogner, PharmD, Anne Parnell, PharmD, MBA, BCPS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify the appropriate DERS compliance rate as recommended by the Institute for Safe Medication Practices.

SELF ASSESSMENT QUESTION: Which of the following is the appropriate DERS compliance rate as recommended by the Institute for Safe Medication Practices?

BACKGROUND: In FY20, Ralph H. Johnson VA Medical Center was 79.8% compliant with Alaris Guardrails, our local dose error reduction system, and did not meet ISMP compliance standards (recommended >95% compliance). Under-compliance with dose error reduction systems like Guardrails can lead to medication errors that significantly impact patient safety. The purpose of this quality improvement project is to increase facility compliance rate with Alaris Pump Guardrails from 79.8% to >90% by February 31, 2020.

METHODOLOGY: Any fluid or medication administered via Alaris Pump will be evaluated for compliance with Alaris Guardrails. In order to increase facility compliance, several interventions will be made:

- Provide training at nursing huddles and staff meetings to address knowledge gaps related to Alaris Guardrails
- Review Alaris Pump Guardrails drug library and update library entries to promote use and decrease barriers
- Distribute educational posters promoting the use of Alaris Guardrails on units throughout medical center
- Complete compliance checks in real-time to identify and address barriers to use for nursing staff
- Review of facility compliance data for 3 months at baseline and then on a monthly basis during the intervention period to determine impact on compliance with Alaris Guardrails

RESULTS: Average facility compliance with Alaris Guardrails DERS increased by 4% with focused nursing education interventions

CONCLUSIONS:

- Regular nursing training and education is essential to maintaining competency of all clinical staff related to the use of dose error reduction systems
 - Interprofessional collaboration between pharmacy and nursing services is optimal in promoting the use of dose error reduction systems as an expected practice
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Presenters: Kenicia Walker

TITLE: Use of Pharmacist Telehealth Visits During the COVID-19 Pandemic and Going Forward

AUTHORS: Kenicia Walker, Elizabeth Oldham, Andrew Hwang, Danielle Baker, Beth Williams, Lauren Alderman

OBJECTIVE: Describe the impact of telehealth visits in patients with chronic disease states pre and post implementation of telehealth services.

SELF ASSESSMENT QUESTION: Telehealth visits have been demonstrated to be impactful for what specific patient outcomes?

BACKGROUND: Current literature supports the use of pharmacist services provided via telehealth to improve medication adherence and to decrease travel-time for patients living in rural areas or in the veteran population.

Additional research is needed to better assess the impact of these virtual visits on patient outcomes and access to care in a broad patient population. The coronavirus disease-19 (COVID-19) pandemic has greatly altered our society and healthcare system. This crisis has made necessary a rapid adoption of telehealth to deliver patient care at a safe distance.

METHODOLOGY: A single-center retrospective chart review for patients managed by pharmacists in an ambulatory clinic setting between September 2019 and September 2020. Patients will be included if they are ≥ 18 years of age with at least 1 office visit during the months of September 2019- February 2020 (pre-telehealth implementation) and at least 1 documented telehealth visit during the months of April 2020-September 2020 (post-telehealth implementation), have diabetes, hypertension, dyslipidemia, chronic lung disease, or tobacco cessation. Excluded patients were those whom were previously managed electronically or by phone having ≥ 2 visits in a 4 week period within the designated pre-telehealth period. Each patient will serve as their own control for statistical analysis and comparison of the endpoints. The primary outcome is change in frequency of telehealth visits vs face-to-face visits. Secondary outcomes include: mean change in A1C, patient satisfaction, pharmacist satisfaction, percentage of patients meeting American Diabetes Association- A1c goal of $< 7\%$ for diabetes, frequency of hospitalizations and ED visits related to chronic condition(s), and the travel distance from patient home to clinic.

RESULTS: In progress.

CONCLUSIONS: In progress.

Presenters: Amanda Hammond

TITLE: Adjunctive Phenobarbital in the Treatment of Severe Alcohol Withdrawal

AUTHORS: Amanda Hammond Patrick Filkins Joe Carpenter Lindsay Rothstein Sara Miller Ted Walton Marina Rabinovich

OBJECTIVE: List potential benefits of phenobarbital as an adjunctive therapy in alcohol withdrawal syndrome.

SELF ASSESSMENT QUESTION: In which patient population might the continued study of phenobarbital show benefit in regard to efficacy and safety?

BACKGROUND: To evaluate clinical and safety outcomes of patients who received phenobarbital adjunctive to benzodiazepines (BZD) for severe alcohol withdrawal syndrome (AWS).

METHODOLOGY: Single-center, retrospective, medical record review at Grady Hospital from January, 2010 through June, 2020 of adults admitted with severe AWS. Patients were included if they were assessed and treated per hospital-specific Grady Alcohol Withdrawal Assessment Scale (GAWAS) and BZD protocol. Protected populations, mild to moderate AWS, previously enrolled patients were excluded. Patients who received phenobarbital in addition to BZD were compared to patients who did not receive phenobarbital at any time during treatment. The primary outcome was mean BZD amount (measured in lorazepam equivalents) administered per patient per day. Secondary outcomes included hospital and ICU length of stay, duration of treatment, total phenobarbital dose, and percentage of patients requiring intubation, experiencing seizures, and receiving rescue therapies.

RESULTS: 141 patients were evaluated. Ninety-five patients met exclusion criteria and 46 patients were included, 19 in phenobarbital group and 27 in non-phenobarbital group. There were no significant differences between the groups with regards to baseline demographics. Patients in non-phenobarbital group received lower total (103mg vs. 134.5mg, $p=0.53$), symptom-triggered (11.3mg vs. 12.7mg, $p=0.24$), and infusion-based (40.3mg vs. 51.4mg, 0.38) amounts of BZD. Hospital and ICU length of stay was lower in non-phenobarbital group (5.2 vs 7.2, $p=0.22$ and 8.4 vs 11.2, $p=0.31$). Use of rescue therapies, intubation, and seizures occurred at a non-significantly higher rate in BZD/phenobarbital group.

CONCLUSIONS: No significant differences were seen between treatment groups. Therefore, it is possible that there is not significant benefit from the use of phenobarbital as an adjunctive to BZD treatment for alcohol withdrawal.

PRESENTATION: <https://drive.google.com/file/d/1uicHREGzfkPmRNqoMbkq9QQjoyLhmgJ-/view?usp=sharing>

R Evaluation of a pharmacist-led, high-risk medication consultation service for geriatric trauma patients at a level-1 trauma center

Room C

Presenters: Corey Bray

TITLE: Evaluation of a pharmacist-led, high-risk medication consultation service for geriatric trauma patients at a level-1 trauma center

AUTHORS: Corey Bray, Breanna Carter, Emily Garrett, Amanda Torbett, Lacie Bradford, Darren Hunt

OBJECTIVE: Evaluate pharmacist impact on high-risk medication use in geriatric trauma patients

SELF ASSESSMENT QUESTION: Do pharmacists positively impact the number of high-risk medications from admission to discharge?

BACKGROUND: Medication reconciliation and avoiding high-risk medications are important approaches to improve patient safety outcomes in the geriatric trauma population. Physiologic changes in geriatric patients, communication barriers, and polypharmacy create challenges obtaining an accurate medication history and may lead to adverse drug events. Pharmacists can help prevent adverse drug events through completing medication reconciliation and making targeted interventions on high-risk medications in geriatric patients. This study evaluates the impact of pharmacist services on the utilization of potentially inappropriate medications in geriatric trauma patients.

METHODOLOGY: This study includes patients 65 years or older admitted to the trauma service at the study institution. The pre-intervention group includes patients from September 2019 through February 2020 and the intervention group includes patients admitted after September 1, 2020. The pharmacist will attempt medication reconciliation completion within 72 hours of admission and document medication recommendations. Patients who are prescribed a high-risk medication at home will receive a letter to their primary care provider in the discharge documentation requesting review of potentially inappropriate medications and alternatives. The pharmacist will follow up 30 days post-discharge to assess acceptance of recommendations. Trauma Surgery providers were surveyed prior to implementation, educated on high-risk medication use in geriatric patients, and will be resurveyed prior to study completion to assess the impact of pharmacist services. The primary outcome is the number of potentially inappropriate medications identified on admission and discharge including anticholinergics, antiemetics, tricyclic antidepressants, sedative/hypnotics, and skeletal muscle relaxants. Secondary outcomes include acceptance of pharmacist recommendations during admission and follow-up, hospital and ICU length of stay, 30-day readmission rate, time to medication reconciliation completion, number of medication reconciliations completed, number of admission and discharge medications, and complications during admission.

RESULTS: In progress

CONCLUSIONS: In progress

<https://youtu.be/7GYmbSFDRre>

R INCIDENCE OF FLUID DE-RESUSCITATION IN SEPTIC SHOCK PATIENTS WHO RECEIVE FLUID BOLUS ALONE VERSUS FLUID BOLUS PLUS MAINTENANCE FLUIDS

Room B

Presenters: Stephen McCall

TITLE: INCIDENCE OF FLUID DE-RESUSCITATION IN SEPTIC SHOCK PATIENTS WHO RECEIVE FLUID BOLUS ALONE VERSUS FLUID BOLUS PLUS MAINTENANCE FLUIDS

AUTHORS: Stephen McCall, Joseph Crosby, Sabrina Croft

OBJECTIVE: Describe results of our retrospective review and identify implications of conservative fluid management compared to maintenance fluids in patient care.

SELF ASSESSMENT QUESTION: What is one potential benefit to conservative fluid management after initial resuscitation in patients with septic shock?

BACKGROUND: Following initial fluid resuscitation, guideline recommendations for further fluid management in patients with sepsis and septic shock have minimal support in the literature to guide clinicians and are contingent upon frequent hemodynamic assessment as best practice. Our aim is to determine potential difference in incidence of need for mechanical or chemical diuresis between patients who receive fluid boluses alone compared to fluid bolus plus maintenance fluids.

METHODOLOGY: Patients 18 years or older were included in this retrospective, observational, chart review based on admission to one of the intensive care units at St. Joseph's or Candler Hospital and diagnosed with septic shock between January 1, 2016 and December 31, 2019. The health system's software was used to identify patients with this diagnosis and received bolus fluids with or without maintenance fluids. Patients included also had additional information gathered including comorbid disease states, admission date, and 30-day mortality.

RESULTS: 107 total patients were included in the IRB-approved study; 26 were in the bolus alone group, and 81 were in the bolus plus maintenance fluids group. Incidence of chemical diuresis in the bolus alone group versus bolus and maintenance fluids group was 34.6% compared to 58.0%, respectively; incidence of mechanical diuresis in the bolus alone group versus bolus and maintenance fluids group was 7.7% compared to 16.0%, respectively. Total fluids, time in ICU, and hospital length of stay were lower in the bolus alone group. There was no difference in mortality.

CONCLUSIONS: Results indicate that boluses of fluids alone result in a statistically significant decreased incidence of chemical and mechanical diuresis utilized, along with shorter hospital length of stay compared to bolus plus maintenance fluids. There was no difference between the groups regarding time on mechanical ventilation or 30-day mortality. Further analysis limited by power; multivariate analysis pending.

<https://youtu.be/RPqj0olfNNY>

I DOXYCYCLINE AND CEFTRIAXONE VERSUS AZITHROMYCIN AND CEFTRIAXONE FOR CRITICALLY ILL PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA: A RETROSPECTIVE COHORT

Room I

Presenters: Nathan Fields

TITLE: DOXYCYCLINE AND CEFTRIAXONE VERSUS AZITHROMYCIN AND CEFTRIAXONE FOR CRITICALLY ILL PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA: A RETROSPECTIVE COHORT

AUTHORS: Nathan Fields, Julia Pate, Benjamin Casey

OBJECTIVE: Examine the role of doxycycline for severe inpatient community acquired pneumonia.

SELF ASSESSMENT QUESTION: What are the benefits of atypical microbiological coverage with doxycycline compared to other agents?

BACKGROUND: Community acquired pneumonia (CAP) is a significant contributor to morbidity and mortality in the United States with an estimated 1.3 million emergency department visits and 50,000 deaths annually. The mainstay of treatment for severe, inpatient CAP is ceftriaxone plus azithromycin, although the use of azithromycin may be associated with adverse cardiovascular outcomes in critically ill patients. On the other hand, doxycycline, an alternative treatment option recommended by the guidelines for non-severe CAP, does not carry the same cardiovascular risks. However, its role in severe CAP has not been established. The role of this study is to investigate the role of doxycycline plus ceftriaxone in critically ill patients with severe CAP.

METHODOLOGY: In this retrospective chart review, ceftriaxone plus azithromycin (CTX+AZM) was compared to ceftriaxone plus doxycycline (CTX+DOXY) in critically ill adults with severe CAP. Eligible participants were between the ages of 18 and 89, admitted to an ICU for at least 48 hours, and treated with CTX+AZM or CTX+DOXY for radiographically confirmed pneumonia for at least 48 hours.

RESULTS: A total of 328 patients were reviewed for inclusion and only 62 patients met the predetermined inclusion criteria: 13 in the CTX+DOXY group and 49 in the CTX+AZM group. No difference was observed between the treatment groups for the primary composite endpoint of inpatient mortality and adverse cardiovascular events (CTX+DOXY: 30.8%, CTX+AZM: 32.7%, 95% CI 0.28-3.17). Additionally, there were no statistical differences in ICU length of stay or hospital length of stay.

CONCLUSIONS: CTX+DOXY was not associated with statistically different mortality or cardiovascular outcomes compared to CTX+AZM. Larger randomized trials are needed to assess the role of doxycycline relative to azithromycin for the treatment of critically ill inpatients with CAP.

Recorded presentation link: <https://www.youtube.com/watch?v=1ffQKaDVm3M>

I INITIATIVE TO DECREASE OVERPRESCRIBING OF ANTIBIOTICS FOR PROPHYLAXIS AND TREATMENT OF DENTAL RELATED INFECTIONS

Room H

Presenters: Makenzie Benton

TITLE: INITIATIVE TO DECREASE OVERPRESCRIBING OF ANTIBIOTICS FOR PROPHYLAXIS AND TREATMENT OF DENTAL RELATED INFECTIONS

AUTHORS: Makenzie Benton, Caitlyn Ocampo, Brian Leith, Amanda Karels

OBJECTIVE: Demonstrate the impact of education and order set development on prescribing rates of antibiotics within the FVA dental department.

SELF ASSESSMENT QUESTION: What is one consequence of prescribing antibiotics for prophylaxis during routine dental procedures?

BACKGROUND: Provide dental staff with education and updated medication order-sets needed to appropriately prescribe antibiotic regimens. Through these implementations, it is anticipated to decrease overprescribing of antibiotics and lessen unnecessary exposure, all while combating drug resistance.

METHODOLOGY: This project was conducted as a single center, prospective cohort analysis. Data reports for August, September and October of 2019 were pulled from VA records to reflect total number of dental encounters and prescribed antibiotics at FVA. During August 2020, dental staff were educated via PowerPoint presentation by the first-year pharmacy resident and antimicrobial stewardship clinical pharmacist. Additionally, a new order-set was implemented into the medication ordering system, to assist providers with appropriate antibiotic selections. Identical data reports were later obtained for September and October of 2020, to assess for change in prescribing rates. Only five, seven, and 10-day prescriptions were included for treatment related data, to allow for a more noticeable comparison. No exclusions were applied to prophylactic antibiotic prescriptions.

RESULTS: Data from August, September and October of 2019, consisted of 4,052 dental encounters, which included 237 prophylaxis prescriptions (5.8%) and 134 treatment prescriptions (3.3%). In comparison, September and October of 2020 had a total of 2,373 dental encounters, including 84 (3.5%) prophylactic prescriptions, and 80 (3.4%) treatment prescriptions. A decrease of 2.3% was seen with overall prescribing rates (9.2% to 6.9%).

CONCLUSIONS: Through implementation of new order-set menus and education of dental staff, overall prescribing of antibiotics was decreased, and antibiotic treatment duration was lessened.

Video Presentation: <https://youtu.be/v5Pj9dk4b-g>

I RISK OF SECONDARY INFECTIONS IN CRITICALLY ILL COVID POSITIVE PATIENTS: A RETROSPECTIVE STUDY

Room J

Presenters: Ca Truong

TITLE: RISK OF SECONDARY INFECTIONS IN CRITICALLY ILL COVID-19 POSITIVE PATIENTS: A RETROSPECTIVE STUDY

AUTHORS: Ca Truong, Jana Mills, Brook Jacobs

OBJECTIVE: Estimate the incidence of secondary infections in patients with COVID-19.

SELF ASSESSMENT QUESTION: Identify predominant organisms and risk factors leading to secondary infections in ICU COVID-19 patients.

BACKGROUND: Severe COVID-19 is associated with intensive care unit (ICU) admission. Historically, increased secondary infections have led to significantly worse prognosis. While secondary infections with bacterial, viral, and other pathogens are well-described in influenza and other respiratory viral illnesses, characteristics and risk factors associated with secondary infections in COVID-19 patients have not been described. The purpose of this study was to determine the incidence of secondary infections in COVID-19 patients in a 32-bed medical-surgical ICU.

METHODOLOGY: This was a retrospective study of ICU patients ≥ 18 years of age, hospitalized with COVID-19 from March to November 2020. Patients were considered to have secondary infections if they had positive blood, sputum, and/or urine cultures with clinical markers of infection after a positive COVID test. Mortality, length of stay, mechanical ventilation, central lines, and steroids were secondary endpoints studied.RESULTS: Among 175 ICU COVID-19 patients, 60 patients had at least one positive culture with clinical markers of infection. Gram-negative pathogens were commonly isolated in the respiratory and urine cultures, specifically *Pseudomonas aeruginosa* in respiratory and *E. coli* in urine cultures. Gram-positive isolates predominated in blood cultures, particularly *Enterococcus faecalis*. As expected, most of fungal isolates were found in urine cultures. Mortality rate among ICU COVID-19 patients with positive cultures and secondary infections was 51.7%.

CONCLUSIONS: ICU patients hospitalized with COVID-19 had a high incidence of secondary infection and mortality. Severe COVID disease, invasive respiratory support, steroid use, and central line presence seem to be risk factors for these patients.

L Evaluation of AUC/MIC Dosing Strategies at a Community Teaching Hospital

Room E

Presenters: Jacqueline Downey

Title: Evaluation of AUC/MIC Dosing Strategies at a Community Teaching Hospital

Author: Jacquie Downey, Jessica Starr, Hillary Holder, Kelsey Knorr

Presentation Objective: Analyze the feasibility of implementing an AUC/ MIC dosing protocol and subsequent effects in a community teaching hospital

Self-Assessment Question: Is it feasible to implement an AUC/MIC based dosing strategy at a community teaching hospital?

Purpose/Background: In April of 2020, the ASHP, IDSA, and SIDP guidelines for vancomycin were updated to recommend shifting to AUC/MIC based dosing strategies. Research published since the initial guideline in 2009 suggests that trough monitoring may fail to estimate a patient's true AUC up to 25 percent of the time. Additionally, use of AUC/MIC based dosing strategies may decrease the occurrence of nephrotoxicity. The purpose of this study is to evaluate an AUC/MIC dosing protocol piloted in a medical floor of the hospital.

Methods: From October 1, 2020 through November 1, 2020, all patients with an order for vancomycin in a predetermined area were screened for inclusion to receive AUC/MIC dosing with a goal concentration of 400-600. AUC/MIC was calculated using online calculators. The primary endpoint was the percent of patients who achieved target AUC/MIC of 400-600 at any point during vancomycin therapy. Key secondary endpoints include number of patients who are appropriately dosed with AUC/MIC method based on appropriate lab draws and number of patients who achieve a therapeutic trough.

Results: 22 patients were included in our analysis. 13 patients (59%) achieved a therapeutic AUC/MIC at any point in therapy, and 9 of these patients (69%) had a trough that would have been subtherapeutic. 9 patients (41%) achieved a therapeutic trough, and 6 patients (27%) had all vancomycin levels drawn appropriately.

Conclusions: Implementation of an AUC/MIC dosing strategy is feasible but presents new challenges and requires coordination between multiple departments.

N COMPARING THE SAFETY, EFFICIENCY, AND COST OF INTRAVENOUS (IV) PUSH VS PIGGYBACK LEVETIRACETAM AT A COMMUNITY TEACHING HOSPITAL

Presenters: Samuel Menasie

TITLE: COMPARING THE SAFETY, EFFICIENCY, AND COST OF INTRAVENOUS (IV) PUSH VS PIGGYBACK LEVETIRACETAM AT A COMMUNITY TEACHING HOSPITAL

AUTHORS: Samuel Menasie, Keith Johnson

OBJECTIVE: Describe the potential impact of implementing hospital-wide IV push levetiracetam.

SELF ASSESSMENT QUESTION: What is one of the potential outcomes of implementing hospital-wide IV push levetiracetam administration?

BACKGROUND: Compare the efficiency, safety, and cost of both IV push and IV piggyback levetiracetam administration in patients receiving their first dose at a community teaching hospital.

METHODOLOGY: After implementing hospital-wide IV push levetiracetam administration, this single-center cohort study included patients 18 years or older who received at least 1 IV piggyback dose pre-implementation (October 26th, 2019-January 26th, 2020) or at least 1 IV push dose post-implementation (October 26th, 2020-January 26th, 2021). IV push doses less than or equal to 1 gram were administered undiluted, and doses greater than 1 gram up to a maximum of 3 grams were diluted with normal saline or dextrose 5 percent in sterile water. The primary outcome was the time from order verification to medication administration. Secondary outcomes include drug cost per month, rate of significant change in blood pressure, and incidence of infusion site reactions.

RESULTS: In this IRB-exempt study, 75 patients were included in the pre-implementation phase, and 72 patients were included post-implementation. The post-implementation group showed a 23 minute faster average verification to administration time compared to the pre-implementation group. More patients in the pre-implementation group experienced a significant change in blood pressure. In addition, only 1 IV piggyback levetiracetam patient was found to have experienced an infusion site reaction compared to 0 patients in the post-implementation group. There was also a 19.6% difference in cost post-IV push levetiracetam implementation.

CONCLUSIONS: Although unable to achieve a statistically significant difference, IV push administration in the post-implementation group showed a faster time from average verification to administration. More research will be necessary to demonstrate a statistically significant difference in average verification to administration time as well as safety outcomes and cost.

Copy & Paste Video Link: <https://www.youtube.com/watch?v=nxEAfofCkr4>

O Evaluation of granulocyte colony-stimulating factor use in the outpatient infusion center setting: a multicenter chart review

Room A

Presenters: Timothy Coyle

TITLE: Evaluation of granulocyte colony-stimulating factor use in the outpatient infusion center setting: a multicenter chart review

AUTHORS: Timothy Coyle, Sonia Thomas

OBJECTIVE: To evaluate the use of pegfilgrastim and filgrastim and their biosimilars in the outpatient infusion center setting.

SELF ASSESSMENT QUESTION: For a patient receiving chemotherapy considered intermediate risk, which of the following is not a risk factor for febrile neutropenia?

- a) Age > 65 years receiving full dose chemotherapy
- b) Bone marrow involvement by tumor
- c) Renal impairment (CrCl < 50 mL/min)
- d) BMI > 25 kg/m²
- e) Prior chemotherapy or radiation

BACKGROUND: Neutropenic fever remains a serious complication of oncologic chemotherapy due to the myelosuppressive effects of most antineoplastic chemotherapy regimens. Since 1991, granulocyte colony-stimulating factors (G-CSF) have been effective in reducing the risk of developing febrile neutropenia and decreasing its duration. However, strong benefits are not seen in patients with low risk of febrile neutropenia, and use of G-CSFs in these patients may incur excessive cost and possible adverse effects.

The purpose of this study is to evaluate the use of pegfilgrastim or filgrastim in the setting of multiple outpatient infusion centers to determine if the use of G-CSF medications are being utilized in accordance with the National Comprehensive Cancer Network (NCCN) guidelines for primary or secondary prevention of febrile and non-febrile neutropenia due to chemotherapy.

METHODOLOGY: This is a multi-center, retrospective, chart review over a 3-month period. The data was collected from patients seen at any of the Northwest Georgia Oncology Centers (NGOC) locations from June 1, 2020 to August 31, 2020. The sample size was 283 patients over this time period. Patients aged 18 and older with a cancer diagnosis who received pegfilgrastim, filgrastim, or a biosimilar were included in the analysis. The patient charts were reviewed for the presence of chemotherapy regimens that were administered over this time period that were considered high-, intermediate-, or low-risk for febrile neutropenia. For patients with chemotherapy regimens not considered high-risk, patient-specific risk factors were evaluated to determine if G-CSF medications were used in accordance with the NCCN guidelines.

RESULTS: A total of 283 patients met the inclusion criteria and were evaluated. The average patient age was 60 years old, and the patient population was 75.3% female. Of the patients evaluated, 268 out of 283 patients (95%) were prescribed and administered pegfilgrastim, filgrastim, or a biosimilar in accordance with the NCCN guidelines for prevention of neutropenia or febrile neutropenia due to chemotherapy.

CONCLUSIONS: We found that over this time period, the majority of G-CSF medication administrations were used in accordance with the NCCN guidelines in the setting of oncology patients within the Northwest Georgia Oncology Centers healthcare system.

B AN EVALUATION OF COPD EXACERBATIONS AFTER UTILIZING THE IN-CHECK DIAL G16 DEVICE

Room K

Presenters: Megan Fonteno

TITLE: AN EVALUATION OF COPD EXACERBATIONS AFTER UTILIZING THE IN-CHECK DIAL G16 DEVICE

AUTHORS: Megan Fonteno, Emily Brinkman

OBJECTIVE: Describe differences among inhaler types and appropriate technique for COPD treatment.

SELF ASSESSMENT QUESTION: Does appropriate inhaler therapy and technique affect hospital readmission rates?

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is an irreversible chronic condition that interferes with a patient's normal breathing. COPD exacerbations requiring hospitalization from improper inhaler technique or patient confusion are common. The In-Check dial device is a coaching tool to train patients to make an inspiratory flow effort consistent with the requirements of their specific device. The device can also help determine if patients have enough inspiratory flow effort to adequately obtain medication from dry powder inhalers. The purpose of this study is to determine whether evaluating patient inhaler technique and inspiratory flow with the In-Check Dial G16 will have an effect on 30-day readmissions for COPD exacerbations.

METHODOLOGY: A retrospective chart review was conducted of adult patients seen in a transitional care clinic at local community hospital with COPD between 8/1/19-12/1/19 (pre-intervention) and 8/1/20-12/1/20 (post-intervention). Patients were included if they were 18 years and older and had an ICD-10 code pertaining to COPD. The primary objective was to determine the number of hospital readmissions due to COPD exacerbations in patients who received education using the In-Check Dial G16 vs. patients who did not. Secondary objectives included comparison of inhaler device changes (DPI to MDI) and cost savings utilizing patient assistance programs.

RESULTS: In progress

CONCLUSIONS: In progress

B Assessment of appropriate guideline-directed A1C goals in elderly diabetic patients who are managed by primary care providers

Presenters: Erika McDonald

TITLE: Assessment of appropriate guideline-directed A1C goals in elderly diabetic patients who are managed by primary care providers

AUTHORS: Erika McDonald, Whitney Narramore, Michael Knauth, Stephanie Grimes, Susan Roberts

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify patient characteristics that warrant relaxed A1C goals in elderly diabetic patients.

SELF ASSESSMENT QUESTION: List patient characteristics that should be considered when setting treatment goals for glycemia in elderly patients with diabetes.

BACKGROUND: This IRB-approved, retrospective chart review is intended to determine the percentage of elderly diabetic patients without guideline directed A1C goal therapy. Recently, a third-party payor shared that 46.5% of members have an A1C of $\leq 7\%$ with 7% of members being below 6%. This indicates we may be overtreating our patients to avoid upper limits of performance metrics and unfavorable CMS ratings. Per ADA guidelines, hemoglobin A1C goals for elderly patients must be determined in a patient-centered fashion, after assessing medical, psychological, functional and social characteristics, since the effects of intensive glycemic control may outweigh the benefit. The results will be compared to the literature to determine if primary care providers are managing elderly diabetic patients appropriately. Additionally, this study will perform a financial analysis of anti-diabetic medication costs and determine rates of hypoglycemia resulting in emergency room visits and hospitalizations.

METHODOLOGY: Patients will be identified from reports collected from a large third-party payor. Charts will be reviewed and information to be collected for each patient includes chronic diseases, A1C, anti-diabetic medications prescribed, hospitalizations and ER visits related to hypoglycemia, and indicators of functional status collected from annual wellness exam questionnaires. Utilizing this information, appropriate A1C goals will be determined referencing American Diabetes Association's Standard of Medical Care in Diabetes-2020, which will be compared to reported A1Cs. Rates of hypoglycemia resulting in ED visits and hospitalizations will also be compared between groups. Data regarding antidiabetic medications prescribed will be used to perform a cost analysis to demonstrate the avoidable cost of inappropriate aggressive therapy.

RESULTS: Seventy-five percent of elderly diabetic patients with an A1C $\leq 7\%$ were treated in a manner that agrees with ADA guidelines. Twenty-five percent of patients were possibly overtreated with aggressive therapy. Complex patients aggressively treated had an average increased cost of antidiabetic medications of approximately \$530 monthly.

CONCLUSIONS: Twenty-five percent of patients were possibly overtreated with aggressive therapy. However, this is lower than what has been reported in the literature. Additionally, a large cost savings opportunity was found for complex patients if providers relax A1C goal therapy.

LINK TO

PRESENTATION: <https://tennessee.zoom.us/rec/share/fad8mdwDXMvO7haZnJgHRifRGAjA9CL1DR4ohGHaVPvP56LCI6-xTN-bulnKaBH.kI91SVRWI-2aFQ3y?startTime=1618507180000>

Presenters: Dana Crawford

TITLE: Pandemic preparedness among community pharmacists across South Carolina

AUTHORS: Dana Crawford, Tessa Hastings, Patti Fabel, Bryan Love, Gene Reeder

OBJECTIVE: Develop interventions within community pharmacies to create and improve pandemic preparedness

SELF ASSESSMENT QUESTION: What is one way that community pharmacists can improve their response during a pandemic situation?

BACKGROUND: As vital members of interdisciplinary healthcare teams, pharmacists have essential roles in patient care and public health. The COVID-19 pandemic has highlighted the important role of pharmacists on the frontlines and the importance of understanding pharmacy pandemic preparedness. However, limited previous research has explored U.S. pharmacists' experiences preparing for pandemic response. Thus, the purpose of this project is to determine South Carolina community pharmacists' knowledge, perceptions, and willingness to participate in outbreak response efforts. This data will support our long-term goal of improving pharmacist preparedness to respond in pandemic situations.

METHODOLOGY: This is a descriptive cross-sectional survey that will include actively practicing community pharmacists, specifically pharmacists in charge, throughout the state of South Carolina. A list of active pharmacists' addresses and phone numbers has been obtained from the South Carolina Board of Pharmacy. This survey will be distributed as part of a larger study of South Carolina pharmacists. A random sample of 60% of community pharmacists will be invited to participate in the needs assessment, with an approximate expected response rate of 30%. Pharmacists will receive a custom postcard with a unique QR link to the online survey. Any returned postcards due to incorrect mailing details will be monitored and additional pharmacists will be identified as replacements should the returned mail reach 25%. Additional recruitment methods may include telephone calls, social media posts, and SC pharmacy organization advertisements as needed. The survey will be hosted online using Qualtrics. Domains of the survey include participant demographics, baseline pandemic knowledge, and pandemic practice. The questionnaire will be pre-tested among a sample of five pharmacists prior to distribution.

Completed surveys will be reviewed weekly during the collection period. De-identified data will be analyzed using the IBM Statistical Package for Social Science (SPSS), and results for non-free response questions will be summarized by descriptive statistics. For the secondary objective evaluating differences in pandemic preparedness between chain retail pharmacists and independent pharmacists, descriptive statistics will also be used. Both descriptive statistics and qualitative descriptions will be used to identify factors associated with pandemic preparedness and willingness to participate in outbreak response efforts. For free-response questions, answers will be qualitatively analyzed and themes will be reported in the results.

RESULTS: South Carolina community pharmacists have limited experience and knowledge of pandemics, but about 30% of respondents have a formal plan or agreement with local health departments to prepare for the COVID-19 vaccine. All respondents have protocols in the pharmacy and PPE available for staff and patient purchase to ensure staff and patient safety.

CONCLUSIONS: Pandemic preparedness plans and formal training are limited among community pharmacies in South Carolina. Willingness to participate in outbreak efforts, though, is noted by pharmacy protocols to protect staff and patients and by the creation of formalized plans and agreements with local health departments in preparation for the COVID vaccine. Pandemic preparedness plans may increase readiness and ability to combat pandemic situations, but further studies are needed to assess their impact.

Presentation Link: <https://youtu.be/rDM6u71EiCc>

R Evaluation and implementation of recombinant factor VIIa criteria for use and dosing strategy in a large community hospital

Room D

Presenters: Alexis Skarupa

TITLE: Evaluation and implementation of recombinant factor VIIa criteria for use and dosing strategy in a large community hospital

AUTHORS: Alexis Skarupa, Jerry Robinson, Kate Adcock

OBJECTIVE: Describe the appropriate use of recombinant factor VIIa (NovoSeven) in cardiothoracic surgery and trauma patients.

SELF ASSESSMENT QUESTION: Why is a lower dose of recombinant factor VIIa (NovoSeven) recommended in cardiothoracic surgery patients?

BACKGROUND: Recombinant factor VIIa (NovoSeven) is used for refractory bleeding after cardiac surgery in non-hemophiliac patients and in severe trauma patients with massive bleeding. At this institution, the criteria for use had not been updated to reflect current practices. Recent evidence recommends the use of a lower dosing strategy of NovoSeven in post-cardiothoracic surgery patients to decrease adverse events. The purpose of this study is to update the criteria for use of NovoSeven to more closely reflect current practices, implement a lower dosing strategy in post-cardiothoracic surgery patients, and evaluate these changes.

METHODOLOGY: Data from patients who received at least one dose of NovoSeven from January 2019 to December 2020 was collected and evaluated to assess adherence to current criteria for use and occurrence of adverse events. Cardiothoracic Surgery was the service group most likely to not meet criteria when prescribing NovoSeven. After discussion with Trauma and Cardiothoracic Surgery, two separate criteria for use were created to meet the needs of each patient population. A new lower dosing strategy was adopted by the cardiothoracic surgeons and has been implemented. Data was collected and evaluated to assess the adherence to the criteria for use and the efficacy and safety of the new dosing strategy.

RESULTS: Prior to implementation, there were 39 total patients included in the study. There were 48 doses given and 77% of those doses met criteria the defined criteria for use. CV Surgery had a 38% compliance rate while Trauma had a 90% compliance. After the new criteria for use was implemented there were 12 total patients given 17 doses. 94% of the doses met the new criteria. The new CV Surgery dose was given one time. There were 11.7% thrombotic ADRs throughout the duration of the study.

CONCLUSIONS: The criteria for use for NovoSeven was updated to reflect the current practices of trauma and cardiovascular surgeons. The adverse even rate was similar to other studies. All dosing included in the study is off-label. There was no apparent correlation between NovoSeven administration and death.

R Guanfacine to Aid in Weaning Dexmedetomidine for Sedation in the ICU

Room B

Presenters: Mary Medley

TITLE: Guanfacine to Aid in Weaning Dexmedetomidine for Sedation in the ICU

AUTHORS: Mary Medley, Adam Wiss, Jordan Tullos

OBJECTIVE: The purpose of this study was to analyze guanfacine and dexmedetomidine practices for sedation in the ICU.

SELF ASSESSMENT QUESTION: Is there a role for guanfacine to transition patients off dexmedetomidine?

BACKGROUND: This was a single-center, retrospective chart review of adults treated with dexmedetomidine and guanfacine for sedation in the ICU between January 2017 and September 2020. Those who received less than two doses of guanfacine, received guanfacine prior to initiating dexmedetomidine, were being treated for alcohol withdrawal, or were receiving paralytics were excluded. The primary objective was to evaluate response to guanfacine at 24 hours. Response was defined as discontinuation of dexmedetomidine within 24 hours of initiating guanfacine without the need for a change in ancillary sedatives. Secondary objectives included rates of hypotension and bradycardia.

METHODOLOGY: This was a single-center, retrospective chart review of adults treated with dexmedetomidine and guanfacine for sedation in the ICU between January 2017 and September 2020. Those who received less than two doses of guanfacine, received guanfacine prior to initiating dexmedetomidine, were being treated for alcohol withdrawal, or were receiving paralytics were excluded. The primary objective was to evaluate response to guanfacine at 24 hours. Response was defined as discontinuation of dexmedetomidine within 24 hours of initiating guanfacine without the need for a change in ancillary sedatives. Secondary objectives included rates of hypotension and bradycardia.

RESULTS: Forty-eight patients were included. Twenty-one patients (44%) were successfully weaned off dexmedetomidine at 24 hours after initiating guanfacine. Of the 27 nonresponders, 9 had an increase in psychoactive medication(s) and 18 patients continued on dexmedetomidine at 24 hours. In nonresponders, the median time to dexmedetomidine discontinuation was 73 hours [IQR, 30-111]. Hypotension occurred in 3 (14%) responders and 3 (11%) nonresponders ($p > 0.99$). Bradycardia occurred in 1 (4%) nonresponder.

CONCLUSIONS: Guanfacine may be a safe and effective strategy to assist in transitioning patients off of prolonged dexmedetomidine infusions.

R The use of albumin in combination with furosemide vs. furosemide alone for de-resuscitation following sepsis or septic shock in critically-ill hypoalbuminemic adults

Room C

Presenters: Michael Long

TITLE: The use of albumin in combination with furosemide vs. furosemide alone for de-resuscitation following sepsis or septic shock in critically-ill hypoalbuminemic adults

AUTHORS: Michael Long, Eric Shaw, Stephanie Lesslie

OBJECTIVE: Assess if the addition of albumin to furosemide provides benefit.

SELF ASSESSMENT QUESTION: Does the addition of albumin to furosemide for de-resuscitation following sepsis or septic shock provide benefit?

BACKGROUND: Fluid therapy is a common treatment in the management of critically ill patients. While fluids are important in sepsis and septic shock management, fluid overload has been associated with poor outcomes in critically ill adults. This study evaluated the use of albumin to augment furosemide in de-resuscitation of the hypoalbuminemic critically ill patient as conflicting data have been published regarding its use in this patient population.

METHODOLOGY: Adult patients admitted to the ICU from July 1, 2015 to June 30, 2020 with hypoalbuminemia as defined as serum albumin < 2.5 g/dL and administered furosemide with albumin or furosemide alone for de-resuscitation following sepsis or septic shock were included. The primary outcome evaluated for this study was the change in net fluid balance after 5 days of de-resuscitation.

RESULTS: Eighty patients were included in this IRB-approved study. This study found that the addition of albumin to furosemide did not provide a significant difference in the change in net fluid balance after 5 days, with the albumin group having a mean + SD of 6,316.6 + 5,632.6 mL vs. 6,137.0 + 5,977.5 mL in the furosemide only group (p = 0.890). This study also found no statistically significant difference in cumulative urine output or net fluid balance at time points 6, 12, 24, 48, 72, 96, and 120, renal replacement therapy, ICU length of stay, mortality, and duration of mechanical ventilation.

CONCLUSIONS: The addition of albumin to furosemide for de-resuscitation following sepsis or septic shock in patients with hypoalbuminemia was not associated with an improvement of net fluid balance. There were no differences in secondary outcomes between groups.

Presentation link:

https://static.sched.com/hosted_files/2021southeasternresidency/b2/SERC%20presentation%20final.mp4

G Pharmacist identification of older patients' priorities in a home-based primary care program

Room F

Presenters: Aparna Krishnamurthy

TITLE: Pharmacist identification of older patients' priorities in a home-based primary care program

AUTHORS: Aparna Krishnamurthy, Autumn Neff, Emma Feder, Casey Tak, Tasha Woodall

OBJECTIVE: Assess patient perspectives on having initial priorities identification conversations with pharmacists on a home-based primary care (HBPC) team

SELF ASSESSMENT QUESTION: How can we better cultivate a patient-centered approach in healthcare?

BACKGROUND: Patient Priorities Care (PPC) seeks to improve care quality for older adults with multiple chronic conditions by aligning clinicians' decisions with patients' values and healthcare priorities. PPC can help ease treatment burden and benefit other patient-centered outcomes. This study seeks to describe: 1) pharmacist-led implementation of PPC within a community HBPC program; and 2) the taxonomy of goals most important to this population.

METHODOLOGY: This is a prospective, single group observational study. Patients were excluded if they were non-English speaking or had barriers with telecommunication.

PPC utilizes a structured interview to explore patients' core values, specify realistic, actionable health outcome goals, and identify a "specific ask" – one thing they want most to focus on to improve their health. Four pharmacists who were trained to facilitate these conversations interviewed patients and/or caregivers to identify priorities. Pharmacists tracked time to complete conversations and recorded patients' or caregivers' responses to three questions designed to capture their reaction to the discussion, gauge their degree of satisfaction or dissatisfaction with the conversation, and solicit their perceptions about discussing healthcare priorities with the pharmacist in particular. Patients' goals were also categorized by value.

RESULTS: Priorities identification conversations were completed for 21 patients. Median conversation length was 30 minutes. Overall average satisfaction with conversations was 4.6/5. Ninety percent of patients considered it appropriate to have PPC conversations with a pharmacist, and 71% believed it was very important/beneficial to share their values and goals with their providers. The predominant value represented by patients' goals was "managing health," followed by "functioning/self-sufficiency."

CONCLUSIONS: Patients found PPC conversations to be a positive experience. Goals were most frequently related to managing symptoms and maintaining independence.

LINK TO PRESENTATION: <https://youtu.be/6I7xulbW19E>

I **Impact of discharge antibiotic prescription review on appropriate empiric antibiotic prescribing in a community hospital emergency department**

Room H

Presenters: Anna Felmer

TITLE: Impact of discharge antibiotic prescription review on appropriate empiric antibiotic prescribing in a community hospital emergency department

AUTHORS: Felmer AC, Simpson H, Kilburn J, Malloy V, Thakkar D, Crawford M, Bowers RD

OBJECTIVE: Identify frequent interventions made by pharmacists for antibiotic prescriptions upon discharge from a community hospital emergency department.

SELF ASSESSMENT QUESTION: Which type of intervention do pharmacists most frequently recommend for discharge antibiotic prescriptions in a community hospital emergency department?

BACKGROUND: Antimicrobial stewardship efforts in the emergency department are generally focused towards the inpatient setting. As half of outpatient medical care occurs in emergency departments, we sought to implement an outpatient-focused antimicrobial stewardship effort. The aim of this study is to evaluate the impact of a pharmacist prescription review process on improving appropriate empiric antibiotic prescribing at discharge from the emergency department at a community hospital.

METHODOLOGY: In October 2020, a prospective discharge antibiotic prescription review process was implemented in the emergency department of a large community hospital. A review was implemented to analyze prescriptions for two months before the new service implementation and two months after. Prescriptions were excluded if the patient was incarcerated, left against medical advice, or laboratory values were missing to determine if the prescription was appropriate. Prescriptions that met initial screening criteria during each timeframe were randomly selected to include 260 prescriptions in each group. The primary endpoint was rate of appropriate empiric antibiotic prescriptions based on indication, drug, dose, and duration. Time in the emergency department and 30-day revisit rates were also compared between the groups. Chi-squared test and unpaired t-tests were utilized for statistical analysis.

RESULTS: Significantly more antimicrobial prescriptions were appropriate in the post-intervention group compared with the pre-intervention group (80.0% vs. 58.4%, p-value <0.0001). Patient time in the emergency department was not significantly different between the two groups (P-value = 0.1636, 95% CI [-69.81 to 11.84]).

CONCLUSIONS: A prospective prescription review process was effective in increasing the rate of appropriate antibiotic prescriptions written for patients upon discharge from a large community hospital emergency department without increasing duration of visit.

I **The Efficacy and Safety of Remdesivir, Convalescent Plasma, and Dexamethasone in the Treatment of Patients with COVID-19**

Room I

Presenters: Saad A. Aldosari

TITLE: The Efficacy and Safety of Remdesivir, Convalescent Plasma, and Dexamethasone in the Treatment of Patients with COVID-19

AUTHORS: Saad A. Aldosari, Matthew W. Mcallister, Natalie Ramsey and Deanne Tabb

OBJECTIVE: The primary objective is to describe the clinical efficacy and safety of remdesivir, dexamethasone, and convalescent plasma versus supportive care in the treatment of patients with COVID-19.

SELF ASSESSMENT QUESTION: Based on the current literature, what role does convalescent plasma have in the treatment of patients with COVID-19?

BACKGROUND: The purpose of this study is to evaluate the efficacy and safety of the triple therapy including remdesivir, convalescent plasma, and dexamethasone compared to supportive care in the treatment of hospitalized patients with COVID-19.

METHODOLOGY: We performed a retrospective chart review of 260 patients with COVID-19 admitted to Piedmont Healthcare between March 1, 2020 to August 31, 2020. The primary outcome assessed is the time to clinical improvement within 28 days after inclusion. Clinical improvement is defined as a two-point reduction in patients' admission status on a six-point ordinal scale, or live discharge from the hospital, whichever came first. The secondary outcomes are all-cause mortality at 14 and 28 days, time of hospital stay in days, severity score at 14 and 28 days from time of inclusion, changes in inflammatory biomarkers including fibrinogen, D-dimer, ferritin and C-reactive protein (CRP) at 14- and 28-days and adverse drug reactions associated with the treatment. An excel spreadsheet is utilized to collect data for primary and secondary outcomes.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Tyler Merritt

TITLE: Urea for the Treatment of Acute Hyponatremia

AUTHORS: Tyler Merritt, Desirae Lindquist, Brianna Alexander, Laura Poveromo

OBJECTIVE: To determine the efficacy of urea, in combination with standard therapies, in the non-ICU management of acute hyponatremia.

SELF ASSESSMENT QUESTION: Based on its mechanism of action, which manifestation of hyponatremia is Urea contraindicated in?

a) Hypovolemic hyponatremia

b) Euvolemic hyponatremia

c) Hypervolemic hyponatremia

BACKGROUND: Hyponatremia, defined as a serum sodium ≤ 135 mEq/L, is the most common electrolyte abnormality encountered in clinical practice, with approximately 15-30% of hospitalized patients experiencing low serum sodium. Treatment strategies currently utilized in the management of hyponatremia are confounded by the lack of comparative, quality clinical efficacy data for each, the substantial cost burden for patients prescribed vasopressin antagonists, poor patient adherence to interventions like fluid restriction, and barriers to administration of certain treatments. A novel agent, urea, has been identified as a possible treatment of hyponatremia. To further define urea's role in the treatment of hyponatremia, this study aims to assess urea's effectiveness in the non-ICU management of acute hyponatremia due to any cause.

METHODOLOGY: In this multicenter, retrospective, cohort analysis, the electronic health record (EHR) was used to identify patients admitted to any of the three Duke University Health System hospitals between September 2017 and October 2020 and who had a diagnosis of hyponatremia. Patients were included in analysis if they were ≥ 18 years of age, had a serum sodium ≤ 130 mEq/L at the time of admission, and receipt of one or more doses of oral urea during the hospital encounter.

RESULTS: Due to low rate of enrollment, inferential statistical analysis was not performed. Though no definitive conclusions can be drawn, the data from this analysis suggests that there is no numerical difference in sodium values between the urea plus standard therapies group versus the standard therapies group alone 24 hours after treatment initiation. There was, however, a numerically greater number of patients with normalized serum sodium values in the urea + standard therapies group at discontinuation, discharge, or 7 days.

CONCLUSIONS: Urea is a reasonable treatment option in the non-ICU management of hyponatremia when combined with other therapies commonly used to mitigate hyponatremia.

O Effects of Thyroxine (T4) Supplementation on Progression-Free Survival in Metastatic Colorectal Cancer

Room A

Presenters: Celia Curtis

TITLE: Effects of Thyroxine (T4) Supplementation on Progression-Free Survival in Metastatic Colorectal Cancer

AUTHORS: Celia Curtis, Aseala Abousaud, Christine Davis, Jeffrey Switchenko, Sujata Kane, Bassel El-Rayes

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify whether supplementation with T4 affects outcomes, such as progression-free survival, in metastatic colorectal cancer patients.

SELF ASSESSMENT QUESTION: How does T4 promote cancer cell growth?

BACKGROUND: The thyroid hormone thyroxine (T4) has been implicated in promoting tumor progression. T4 signaling has been shown to affect cancer cell growth in part by influencing gene expression involved in cell proliferation and angiogenesis. Previous studies have shown that T4 induces proliferation of cancer cells in colorectal cancer (CRC), glioblastoma, non-small cell lung cancer, triple negative breast carcinoma, ovarian carcinoma, myeloma, and renal cell carcinoma. The primary purpose of this study is to evaluate whether supplementation with T4 affects outcomes, such as progression-free survival, in metastatic CRC patients. Additional objectives include comparing disease control (response to treatment or stable disease) and differences in overall survival. This study would add to the literature on the impact of thyroid supplementation with T4 on cancer patients, specifically within the metastatic CRC patient population.

METHODOLOGY: This study is a single-center, retrospective chart review including patients at Winship Cancer Institute with metastatic colorectal cancer who received at least one cycle of FOLFOX or FOLFIRI while taking levothyroxine during August 1, 2010 to June 30, 2020. Patients who received immunotherapy or were taking any of the following thyroid supplements: desiccated thyroid extract (T3/T4), Liotrix (T3/T4), Thyrolar (T3/T4), Liothyronine (T3), Cytomel (T3) will be excluded. Controls will be matched 3:1 to patients to assess the difference in progression-free survival between case-control matched groups. Survival endpoints will be estimated using the Kaplan-Meier method.

RESULTS: Between the case-control comparisons there were no significant differences except dose adjustments (p-value 0.003). Median progression-free survival was 7.1 months in the cases (range 4.1, 15.8) vs. 11.5 in the controls (range 8, 14); p-value 0.2192. Median overall survival was 22.6 months from treatment start (range 14.3, 66.2) for the cases, which was significantly less than the controls (N/A; range 53.7, N/A); p-value <0.001.

CONCLUSIONS: Overall, T4 supplementation appears to affect overall survival in metastatic CRC patients; further studies are warranted to confirm effects on progression-free survival and overall survival.

B Evaluation of a school of pharmacy and Veterans Affairs (VA) partnership to provide a telepharmacy-based population health clinic

Room J

Presenters: Jenna Nehls

TITLE: Evaluation of a school of pharmacy and Veterans Affairs (VA) partnership to provide a telepharmacy-based population health clinic

AUTHORS: Jenna R. Nehls, Courtney E. Gamston, Pamela Stamm, Kimberly Braxton Lloyd

OBJECTIVE: At the conclusion of my presentation, one will be able to describe how pharmacists can use population health dashboards to improve clinical outcomes.

SELF ASSESSMENT QUESTION: Name two examples of interventions that pharmacists provide based on population health dashboards?

BACKGROUND: The tools of population health management are used to improve clinical outcomes for individuals not meeting specific health goals. National quality measures are commonly used to identify measures for targeted intervention. A pharmacy school and a VA collaborated to improve patient care through the establishment of a pharmacist-led population health clinic. The purpose of this study is to determine the impact of interventions resulting from implementation of the clinic.

METHODOLOGY: A retrospective chart review of patients with diabetes identified during the 2019-2020 academic year with an A1c > 9%, not taking a statin medication, and/or needing annual labs was conducted. Primary outcomes include percentage of patients completing a diabetes management appointment with a clinical pharmacist, initiating a statin medication, and/or receiving annual labs after the population health interventions. Descriptive statistics and results of pre-/post-data utilizing paired t-test analyses are reported.

RESULTS: There were 36 patients identified from the A1c > 9% dashboard with an average A1c of 11.2%. Of these, 15 were referred to meet with a clinical pharmacist and 12 patients completed at least one appointment. The post-appointment A1c significantly decreased to 9.2% (p=0.04). Additionally, 184 patients not taking a statin medication were identified, 53 of which were eligible for a statin medication, and 8% initiated statin therapy. There were 80 patients identified that were due for annual labs and 17.5% completed labs after intervention.

CONCLUSIONS: Pharmacists are able to make a significant clinical impact using population health dashboards for patients with diabetes including A1c lowering, statin initiation, and completion of laboratory testing.

Presentation: https://docs.google.com/presentation/d/1_C6Mli8xpzs4qmLn1A_dWx00z5Tt6mklCZolnmxz6yl/edit?usp=sharing

B Persistence, Discontinuation or Switch of Disease-Modifying Therapies in Patients with Relapsing Multiple Sclerosis at a Health-System Specialty Pharmacy

Room K

Presenters: Miranda Kozlicki

TITLE: Persistence, Discontinuation or Switch of Disease-Modifying Therapies in Patients with Relapsing Multiple Sclerosis at a Health-System Specialty Pharmacy

AUTHORS: Miranda Kozlicki, Brandon Markley, Nisha Shah, Josh DeClercq, Leena Choi, Autumn Zuckerman

OBJECTIVE: Evaluate SP roles in DMT management. List reasons for DMT discontinuation/switch.

SELF ASSESSMENT QUESTION: How can pharmacists intervene during DMT discontinuation/switch?

BACKGROUND: Limited data exists on long-term persistence and reasons for discontinuation or switch of disease-modifying therapy (DMT) in patients with relapsing multiple sclerosis (RMS).

METHODOLOGY: We performed a retrospective analysis of adult patients with RMS who had ≥ 2 fills of DMT from May–October 2017. Data from first DMT fill ('index') through 36 months was used to assess persistence, using time to first discontinuation (index DMT stopped and no DMT restarted for >60 days) or switch (new DMT started within 60 days of last index DMT fill). We assessed Specialty Pharmacist (SP) involvement in and reasons for index DMT discontinuation/switch. Descriptive statistics were used to summarize sample characteristics and outcomes. The Kaplan-Meier estimation method was used to estimate probability of remaining persistent.

RESULTS: We included 543 patients (74% female, 84% white, mean age 49 ± 11 years): 193 remained on index DMT, 93 discontinued index DMT, 136 switched therapy, 93 transferred care, 21 were lost to follow-up, and 7 died.

Probability of remaining persistent through 36 months was 0.51 (95% confidence interval 0.46-0.56). Of patients who discontinued index DMT, median time on therapy was 514 days (interquartile range [IQR] 203, 722). Of patients who switched index DMT, median time on index DMT was 415 days (IQR 237, 623). Reasons for discontinuation included: side effects (32%), stable disease (13%), and prescriber-mandated hold (12%). Reasons for switch included: insurance change (36%), clinical decline (32%), and lack of benefit (10%). SPs intervened in 67% of discontinuations and 77% of switches, most commonly to provide education, establish follow-up care or secure insurance approval.

CONCLUSIONS: Changes in DMTs for RMS are common. Integrated SPs play a crucial role in ensuring safe transition off or between DMTs.

Y Assessing the Impact of Pharmacist-Initiated Education on Cost-Effective Nutrition for Diabetes Patients Impacted by COVID-19

Room G

Presenters: Victoria Phan

TITLE: Assessing the Impact of Pharmacist-Initiated Education on Cost-Effective Nutrition for Diabetes Patients Impacted by COVID-19

AUTHORS: Victoria Phan, Tiffany Park, Paige Brockington, Jennifer Elliott

OBJECTIVE: The objective of this study is to identify patients diagnosed with type 2 diabetes mellitus (T2DM) who have been negatively impacted financially by the COVID-19 pandemic and have decreased blood glucose control in association to food instability or reduced access to nutritious food. After identification of an acute financial issue, investigators will provide identified patients with educational materials and resources about cost-effective nutritional options to assist in blood glucose control.

SELF ASSESSMENT QUESTION: Can pharmacist-intervention and education about cost-effective nutrition lead to decreased blood glucose levels and hemoglobin A1c (HbA1c) in T2DM patients suffering financially due to COVID-19?

BACKGROUND: Diabetes is a chronic illness that affects 34.2 million adults in the US. The COVID-19 pandemic caused a rise in unemployment rates up to 14.7% total in April 2020.

METHODOLOGY: A pre-survey will be given to T2DM patients to collect demographic/contact information and questions to assess the impact of COVID-19 on their current financial situations, their changes in diet, and self-measured blood glucose (SMBG). The survey will be conducted at two separate clinics that provide diabetes care and at a community-based specialty pharmacy. Patients will be enrolled in the study if they meet criteria for 1) negative financial impact due to COVID-19 and 2) decreased control of blood glucose and/or HbA1c. Patients enrolled in the study will receive resources related to cost-effective food options and will also be provided a full consultation regarding the resources.

Patients will be asked to self-report morning fasting SMBG levels and HbA1c at the start of the investigation. SMBG levels will be collected by phone monthly for three months. At the end of the 3-month study period, patients will be asked to turn in SMBG logs, most recent A1c, and complete a post-survey. The post-survey will assess their current financial situation and perception of the impact of diabetes care, nutrition counseling, and educational materials.

RESULTS: In progress

CONCLUSIONS: In progress

<https://vimeo.com/538384699>

R Comparison of Low vs. High Dose (Prothrombin Complex Concentrate) PCC in Patients Undergoing Cardiothoracic Surgery

Presenters: Meera Jayendra Patel

TITLE: Comparison of Low vs. High Dose (Prothrombin Complex Concentrate) PCC in Patients Undergoing Cardiothoracic Surgery

AUTHORS: Meera Patel, Nicholas Barker, William Bender

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify and compare low dose versus high dose PCC in the treatment of bleeding associated with cardiothoracic surgeries.

SELF ASSESSMENT QUESTION: Is a lower dose of PCC as safe and efficacious as higher doses?

BACKGROUND: Data reveals that PCC may be more advantageous due to its increased concentration of clotting factors, more rapid reversal, and reduced blood transfusion requirements in comparison to FFP. The purpose of the study was to compare the efficacy and safety of low dose PCC (15 units/kg) to high dose PCC (25 units/kg) in patients undergoing cardiothoracic surgeries.

METHODOLOGY: Participants were included if > 18 years old, undergoing cardiothoracic surgery (CTS) at ESJH who received PCC. Participants were excluded if they had a history of hypercoagulable conditions, anticoagulant use within 2 days, or pregnant.

RESULTS: Overall, baseline demographics were similar in both groups in terms of age, gender, and race. Approximately 96 patients were evaluated, 49 patients received low dose PCC and 47 patients received high dose PCC. On average low dose PCC patients had less blood product usage including red blood cells ($p=0.175$, 95% CI - 0.88, 4.77), platelet transfusions ($p = 0.026$, 95% CI 0.43,6.60), and fresh frozen plasma ($p = 0.014$, 95% 0.33 - 2.91). However, high dose patients received slightly more pooled cryoprecipitate. Patients who received high dose PCC had an increased incidence mortality (18.8%) and washout overall (14.6%). Viscoelastic testing was more common in the low dose group.

CONCLUSIONS: This retrospective chart review revealed low dose PCC is associated with less blood product usage. Lower dosing may pose similar safety concerns and similar efficacy results in comparison to higher doses of PCC proving to be beneficial and for optimization of patient care in aortic-cardiothoracic surgery patients.

<https://youtu.be/PxidV0Y-DkQ>

R Comparison of Three Adjunctive Agents for the Treatment of Benzodiazepine-Refractory Alcohol Withdrawal Syndrome

Room C

Presenters: Gina Cherniawski

TITLE: Comparison of Three Adjunctive Agents for the Treatment of Benzodiazepine-Refractory Alcohol Withdrawal Syndrome

AUTHORS: Gina Cherniawski, Erica Merritt, Allison Powell

OBJECTIVE: Evaluate the efficacy and safety of phenobarbital, propofol, and dexmedetomidine for the treatment of BRAW.

SELF ASSESSMENT QUESTION: What adjunctive study agent was most efficacious in treating BRAW?

BACKGROUND: Compare the utilization and efficacy of phenobarbital, propofol, and dexmedetomidine for patients admitted with benzodiazepine-refractory alcohol withdrawal (BRAW). Evaluate the incidence of patients requiring treatment with a second study agent within 24 hours after the initiation of the primary study agent.

METHODOLOGY: Retrospective chart review of patients admitted for alcohol withdrawal syndrome (AWS). Eligible participants were ≥ 18 years old with a diagnosis of AWS treated with intravenous phenobarbital, propofol, or dexmedetomidine. Efficacy was evaluated by comparing Clinical Institute Withdrawal Assessment for Alcohol-Revised (CIWA-Ar) scores post-study drug administration and need for a second study agent within 24 hours. Treatment success was defined as achieving a CIWA-Ar <16 at 24-hours after the initiation of a study agent.

RESULTS: Ninety-one patients were included in the study. For the primary objective, 97%, 89%, and 73% of patients receiving phenobarbital, propofol, and dexmedetomidine achieved a CIWA-Ar score <16 after administration of the study agent, respectively. Prior to the initiation of the study agent, 32%, 58%, and 63% of patients in the phenobarbital, propofol, and dexmedetomidine groups had CIWA-Ar scores >16 , respectively. For the secondary objective, 16%, 53%, and 10% of patients in the phenobarbital, propofol, and dexmedetomidine groups required treatment with a second study agent within 24 hours after the initiation of the primary agent, respectively.

CONCLUSION: There was a significant difference in the phenobarbital group achieving CIWA-Ar scores <16 at 24 hours post-study drug administration. In this evaluation, phenobarbital was typically used to prevent adverse events from AWS rather than in patients refractory to symptom-triggered benzodiazepine therapy. Future studies are needed to determine if phenobarbital would be as effective if utilized more appropriately in BRAW.

Audiovisual Link: <http://youtu.be/-JmiKWx0INE>

R Sepsis alert early indicator in the emergency department: effect on antibiotic timing – a quasi-experimental review

Room B

Presenters: Renato Aranda

TITLE: Sepsis alert early indicator in the emergency department: effect on antibiotic timing – a quasi-experimental review

AUTHORS: Renato E. Aranda, Lauren Wright, Jason E. Dover, Sarah-Anne Blackburn, Jordan Vickers

OBJECTIVE: Assess the impact of an electronic visual alert system on the time to antibiotic administration

SELF ASSESSMENT QUESTION: What role can ED pharmacists play in the management of septic patients?

BACKGROUND: Current evidence-based sepsis guidelines recommend the administration of broad-spectrum intravenous antibiotics within 3 hours of presentation. In 2019, East Alabama Medical Center (EAMC) implemented an electronic visual alert system for patients with positive sepsis screenings at triage to improve adherence to current guidelines. The purpose of this study is to compare the time to antibiotic administration in septic patients admitted through the emergency department before and after the implementation of an electronic visual alert system.

METHODOLOGY: In this retrospective cohort study, patients ≥ 19 years admitted through the EAMC emergency department with a diagnosis of sepsis or septic shock from January 2019 to July 2019 and September 2019 to March 2020 were evaluated. Patients who became septic post-admission were excluded. The primary outcome was the percentage of patients receiving broad-spectrum IV antibiotics administered within 3 hours of presentation. Secondary outcomes included time to antibiotic administration, impact of ED pharmacist presence regarding time to antibiotic administration, length of stay, and mortality.

RESULTS: The percentage of patients receiving broad-spectrum IV antibiotic administration within 3 hours was the same (66%) between groups. Median time to antibiotics was reduced by 17 minutes in the post-intervention group (137 vs 154 minutes, $p=0.2668$). Time to antibiotics when a pharmacist was present in the ED was 154 minutes pre-intervention and 145 minutes post-intervention ($p=0.6309$). Additionally, the post-intervention group had lower all-cause mortality (8 vs 11, OR 0.7: 95% CI, 0.27-1.83) and reduced length of stay (6 vs 7 days, $p=0.3096$).

CONCLUSIONS: The implementation of a visual alert system for patients with positive sepsis screenings at triage was associated with decreased time to antibiotics, reduced length of stay, and lower mortality rates.

Link: <https://drive.google.com/drive/folders/1mDZym0AM51N1qaJJ2umvMNjxni380KF?usp=sharing>

Presenters: Sam Glenn

TITLE: Bacterial Pneumonia Co-infection in COVID-19 Patients

AUTHORS: Samuel Glenn, PharmD; Ryan Lally, PharmD, BCPS; Rachel Langenderfer, PharmD, BCPS; Lloyd Sarbacker, PharmD, BCPS; Linh Tran, PharmD Candidate; Madelyne Warren, PharmD Candidate

OBJECTIVE: At the conclusion of my presentation, the participant will be able to: describe the incidence of bacterial pneumonia co-infection in COVID-19 patients at admission, assess the appropriateness of empiric antibiotics, identify patients in whom antibiotics can be spared.

SELF ASSESSMENT QUESTION: Which COVID-19 patients should be considered for empiric antibiotics upon admission to the hospital?

BACKGROUND: Evidence has shown that patients who suffer from a viral respiratory infection may also suffer from bacterial co-infections. This study looks at the incidence of bacterial pneumonia co-infection in COVID-19 patients and usage of empiric antibiotics.

METHODOLOGY: De-identified data was obtained retrospectively from patient charts. Data was collected concerning the patient's baseline characteristics, history of present illness, length of stay, and pharmacological/antimicrobial and microbiological history. Patients were classified into either "community-acquired bacterial pneumonia co-infection" (CABPC) based on the timing of the cultures or antibiotics. A patient was considered to have CABPC if cultures obtained within 72 hours of admission resulted positive. This study also assessed for clinical outcomes related to length of stay and discharge. 163 patients who were cultured were randomly selected for analysis if they met the following criteria: admitted to Bon Secours St. Francis Downtown from 3/15/2020-9/15/2020, positive test for or clinical diagnosis of COVID-19.

RESULTS: Of the 163 patients, only 7 were found to have a bacterial co-infection (4.8%) on presentation. The only statistically significant baseline characteristic between the CABPC group and the Non-CABPC groups was mean procalcitonin at baseline, 14.43 vs 1.02 ($p < 0.001$). Other characteristics were not statistically different. There was a significant difference in 14-day mortality (43% vs 12%, $p = 0.02$) with a lower 14-day mortality in Non-CABPC, but no difference in 30-day or overall mortality between groups ($p = 0.159$).

CONCLUSIONS: Based off the data from this retrospective, observational study, patients rarely present with CABPC. Many patients may not require antimicrobial coverage at admission, but this study does not provide sufficient evidence for baseline characteristics for risk stratification. Procalcitonin may be of clinical utility, but further evidence and studies are warranted.

PRESENTATION LINK: <https://youtu.be/ZPX5ge1809k>

Presenters: Brittany Till

TITLE: Evaluation of duplicate perioperative antibiotic therapies and potential adverse events

AUTHORS: Brittany U. Till, Joshua Settle, Mary McKnight

OBJECTIVE: Evaluate the incidence of duplicate perioperative antibiotics and resulting adverse events.

SELF ASSESSMENT QUESTION: What was the most common perioperative antibiotic duplication?

BACKGROUND: The usage of perioperative antibiotics is a standard of care practice to decrease potential post-operative infections. However, the initiation of perioperative antibiotics in patients already receiving antibiotic coverage creates a preventable duplication of therapy. Duplication of perioperative antibiotic therapy may lead to increased antimicrobial resistance, unnecessary costs, drug-drug interactions, and preventable adverse events. The purpose of this study is to evaluate the incidence of duplicate perioperative antibiotics and potential adverse events at Baptist Medical Center South (BMCS). Potential cost savings will also be determined.

METHODOLOGY: This is a single-center, institutional review board approved retrospective chart review of patients that received perioperative antibiotics at BMCS from January to November 2020. Patient's charts were reviewed if they met all inclusion criteria. The electronic medical record system was utilized to review patient demographics, perioperative antibiotics administered, renal function changes and positive *Clostridium difficile* reported within fourteen days following duplicate antibiotic use. The primary outcome was to determine the percentage of patients receiving duplication of perioperative antibiotics. The secondary outcomes included the percentage of patients that experienced an adverse event and potential cost savings from eliminating duplicate antibiotic use.

RESULTS: Duplication of perioperative antibiotics occurred in 3.4% of patients undergoing surgical procedures. Out of the 147 patients that received duplication of perioperative antibiotics, sixteen percent experienced an adverse event. The most common adverse event was acute kidney injury (46%). Other adverse events included renal changes (33%) and supratherapeutic Vancomycin levels (21%). The estimated cost savings was around \$4,000 which includes order entry time, verification time, preparation time, and product usage.

CONCLUSIONS: There was a lower incidence rate of adverse events than anticipated; however, there were still adverse events that occurred with changes in renal function and elevated vancomycin levels. The results will be taken to Antimicrobial Stewardship (AMS) subcommittee and discuss future interventions that can be implemented to reduce unnecessary duplicates of therapy.

Presenters: Alyssa Osmonson

TITLE: Non-vitamin k oral anticoagulants in end-stage renal disease

AUTHORS: Alyssa Osmonson, Nathan Pinner, Jessica Starr, Kenda Germain, Thomas Achey

OBJECTIVE: State if NOACs are safe and efficacious in patients with ESRD

SELF ASSESSMENT QUESTION: Are NOACs safe and efficacious in patients with ESRD?

BACKGROUND: With the development of non-vitamin K oral anticoagulants (NOACs) options for anticoagulation in the general population has greatly increased. Trials demonstrating efficacy of NOACs consistently exclude patients with end-stage renal disease (ESRD). Results observational studies of NOACs in ESRD patients have led to changes in manufacturer and guideline recommendations, despite their small sample sizes. The purpose of this study is to determine if NOACs are safe and efficacious in patients with ESRD at Princeton Baptist Medical Center.

METHODOLOGY: This study is a retrospective, single-center chart review. The electronic medical record was used to identify patients 18 years and older admitted from January 1, 2015-August 1, 2020 with ESRD and received an oral anticoagulant for at least 24 hours during admission or at discharge. Patients were excluded for concomitant use of dual antiplatelet therapy, high risk of bleeding, invalid contact information or inability to contact patient after 2 attempts if unable to obtain information from chart review alone, or pregnancy. The primary endpoint was the occurrence of major bleeding. Secondary outcomes included the occurrence of minor bleeding, thrombosis, and admission secondary to a bleeding event or thrombotic event.

RESULTS: 68 patients were included in the study. 36 patients received warfarin and 32 received a NOAC. The primary outcome occurred in 15 (42%) of patients on warfarin and 5 (16%) patients receiving a NOAC ($p=0.0317$). There was no statistically significant difference in secondary outcomes.

CONCLUSIONS: Warfarin is associated with an increased risk of major bleeding in patients with ESRD when compared to treatment with a NOAC.

Video Link: <https://youtu.be/n4DPD-XhdU0>

O A real-world safety analysis of programmed death-1 pathway inhibitors (PD-1i) in patients with solid tumor malignancies and preexisting autoimmune disorders Room A

Presenters: Jordyn Higgins

TITLE: A real-world safety analysis of programmed death-1 pathway inhibitors (PD-1i) in patients with solid tumor malignancies and preexisting autoimmune disorders

AUTHORS: Jordyn P. Higgins; Anh V. Trinh; Tyler Beardslee; Marley Watson; Subir Goyal; Suchita Pakkala; Ragini Kudchadkar; Kristina F. Byers

OBJECTIVE: To characterize the safety and efficacy of PD-1i in patients with preexisting autoimmune disorders

SELF ASSESSMENT QUESTION: True or false: Based upon this presentation, immunotherapy can be safely used in patients with solid tumor malignancies and controlled autoimmune disease

BACKGROUND: Clinical trials evaluating PD-1i have largely excluded patients with PAD due to their innate predisposition to immune-related adverse events (irAEs). Only a few retrospective studies have evaluated the safety and/or efficacy of immunotherapy in patients with PAD. With many Americans currently living with PAD and the widespread use of immunotherapy, additional studies are needed to determine if PAD increases the risk of developing irAEs after PD-1i administration.

METHODOLOGY: A retrospective chart review was conducted on adults with solid tumor malignancies who received > 1 dose of pembrolizumab or nivolumab at Emory Healthcare from September 4, 2014 until December 31, 2019.

Patients were grouped according to PAD comorbidity status and matched using propensity score matching. The primary outcome is the incidence of irAEs.

RESULTS: Seventy-seven patients in the autoimmune group and 156 patients in the non-autoimmune group were included in this study. The majority of patients had an ECOG score of 0-2 (93.8%), metastatic disease (79.8%), and did not receive previous immunotherapy (90.9%). The most common solid tumor types were skin (32.2%), aerodigestive (26.6%), and genitourinary (19.7%). PAD was controlled in all of the autoimmune patients prior to immunotherapy (100%). In the autoimmune group, significantly more patients were female (49.35% vs. 33.97%, $p=0.024$), received 0 prior lines of therapy (59.74% vs. 42.31%, $p=0.012$), and had inflammatory disease at baseline (22.08% vs. 12.18%, $p=0.049$). The rate of irAE was 32.7% in the non-autoimmune group and 42.9% in the autoimmune group (OR 0.65, 95% CI 0.37-1.14, $p=0.130$).

CONCLUSIONS: Our data suggests that immunotherapy can be safely used in patients with solid tumor malignancies and controlled autoimmune disease.

1 Thrombosis Rates in Pediatric Liver Transplant Recipients Room F

Presenters: Anna Crooker

TITLE: Thrombosis Rates in Pediatric Liver Transplant Recipients

AUTHORS: Anna Crooker, Rochelle Liverman, Staci Serluco, Jenny Li, Gary Woods

OBJECTIVE: Evaluate the rates of thrombosis after the implementation of a target anticoagulation protocol

SELF ASSESSMENT QUESTION: Which of the following patients would benefit from anticoagulation after liver transplant?

BACKGROUND: Hepatic artery thrombosis (HAT) and portal vein thrombosis (PVT) are life-threatening complications after liver transplant. Thrombosis occurs due to an imbalance of pro-coagulation and natural anticoagulation factors. The use of anticoagulation after transplantation is not standardized and must balance the patient's risk of bleeding and thrombosis. Our primary objective was to determine the effect of an anticoagulation protocol on incidence of thrombosis after transplant.

METHODOLOGY: A retrospective chart review of liver transplant recipients was conducted at Children's Healthcare of Atlanta from 1/1/2009-12/31/2019. The primary outcome was to compare the incidence of thrombosis prior to our anticoagulation protocol (1/1/2009-7/31/2016) and after implementation (8/1/2016-12/31/2019). Prior to protocol implementation there was no standardized approach to anticoagulation use. The protocol encouraged prophylactic anticoagulation in the following patients: < 15 kg, underlying metabolic disease or malignancy, thrombosis of the native liver, vascular reconstruction, retransplantation due to thrombosis, and physician discretion. Secondary outcomes included time to thrombosis, adverse events, and patient and graft survival.

RESULTS: We reviewed 257 patients, 165 pre and 92 post protocol. The overall thrombosis rate was 13.7% pre protocol which was not statistically different from 18.3% post protocol ($p=0.3067$). Patients ≤ 8.7 kg ($p=0.0283$) and ≤ 5 months of age ($p=0.0378$) were found to have a significantly higher risk of thrombosis after transplant. The median time to thrombosis was 2.5 days pre protocol which was not statistically different from 7.5 days post protocol ($p=0.5888$). Patients experiencing a thrombotic event had a significantly lower survival rate (112 months with thrombosis, 140 months without; $p=0.0432$) as well as graft survival rate (41 months with thrombosis, 71 months without; $p=0.0057$). Twenty adverse events were reported in patients with thrombosis receiving anticoagulation compared to 6 adverse events in patients without thrombosis receiving anticoagulation.

CONCLUSIONS: Patients ≤ 8.7 kg and ≤ 5 months of age are at highest risk for thrombosis after transplant.

B Implementation of Interprofessional Diabetes Telehealth Services in a Rural Primary Care Organization*Presenters: Emma Feder*

Room J

TITLE: Implementation of Interprofessional Diabetes Telehealth Services in a Rural Primary Care Organization

AUTHORS: Emma Feder and Anne ("Andy") Warren

OBJECTIVE: Describe the implementation of a multidisciplinary diabetes telehealth clinic at a primary care site

SELF ASSESSMENT QUESTION: Which methods may be utilized to implement an interprofessional diabetes telehealth clinic in a primary care setting?

BACKGROUND: Diabetes affects many lives, and those most impacted include rural populations who lack regular access to healthcare. The coronavirus pandemic has worsened this problem. At Mountain Area Health Education Center (MAHEC), a primary care center located in Asheville, North Carolina, our clinical pharmacy department utilizes telehealth-based care models to extend health services to western North Carolina, an area with a significant underserved population. Our longitudinal diabetes telehealth program began in 2018 and developed into a pharmacy resident-run, interdisciplinary clinic.

METHODOLOGY: We conducted interviews with previous pharmacy residents to gather information about program implementation, including success and challenges. We also sought feedback from key personnel including current pharmacy residents, pharmacists, physicians, nutritionists, and schedulers on how to improve the clinic. We then determined emerging patterns regarding challenges, successes and suggestions for improvement.

RESULTS: In fall 2018, the pharmacotherapy department established a diabetes telehealth clinic, which functions one half-day per week. It allows frequent follow-up with rural patients, helps our organization meet Accountable Care Organization quality measures, and gives residents exposure to diabetes care. It also evolved to include nutrition counseling. Other areas of growth include streamlining schedules and increasing awareness about the clinic.

Successes include interdisciplinary involvement, incorporation of learners, and regular patient follow-up. Challenges include lack of physician awareness, the need for additional clinic days, and the necessity of a "graduation" system for our patients.

CONCLUSIONS: Implementation of an interprofessional diabetes telehealth service is possible in primary care.

Benefits include increased access to care, learning opportunities for residents and students, and increased interprofessional collaboration. Continuous quality improvement is necessary to address barriers and evolve to meet the needs of patients and providers.

Presentation link: <https://youtu.be/QJt2QOh-Onc>

B Increased utilization of a home telehealth program to improve outcomes in a pharmacist-run medication management clinic

Room K

Presenters: Brianca Fizer

TITLE: Increased utilization of a home telehealth program to improve outcomes in a pharmacist-run medication management clinic

AUTHORS: Brianca Fizer

OBJECTIVE: Enroll Veterans with uncontrolled diabetes followed by a clinical pharmacy specialist into CCHT to evaluate management and outcomes.

SELF ASSESSMENT QUESTION: Will enrolling Veterans with high-risk diabetes from a CPS clinic into CCHT be an effective method for improving outcomes and monitoring patients more closely?

BACKGROUND: Diabetes affects nearly 25% of Veterans compared to only 10% of nonveterans. Interventions made by clinical pharmacy specialists (CPS) have demonstrated improvement in clinical outcomes; however, many Veterans are still not meeting their clinical goals for diabetes. The Veteran's Health Administration's program, Care Coordination/Home Telehealth (CCHT), was created to enhance the care of Veterans who have chronic conditions by performing remote monitoring and care coordination. Thus, increasing enrollment into CCHT could result in better diabetes management.

METHODOLOGY: This study enrolled CPS-followed Veterans with longstanding diabetes into CCHT. Data collection includes a retrospective chart review of a 6-month period pre-enrollment and post-enrollment into CCHT. A pre- and post-enrollment analysis will evaluate the effectiveness of CCHT on outcomes including A1c, blood glucose (BG), hypoglycemic events, CPS interventions, and number of CPS visits.

RESULTS: Sixteen Veterans were enrolled. Average age was 63.4±12.1 years, 100% were male with type 2 diabetes, 69% were black, average baseline A1c was 10.4±2.6, and 56% stayed enrolled in CCHT the entire study period. Data from pre – enrollment endpoints was compared to post – enrollment endpoints: average A1c decreased 10.3±2.5 to 8.4±1.7 mg/dl, average blood glucose decreased 159.4±21.0 to 148.7±36.9 mg/dl, average hypoglycemic events increased 2.0±1.4 to 10.4±8.74, average number of pharmacist interventions increased 8.5±7.0 to 9.5±7.1, and the average number of CPS visits 4.5±1.9 to 6.4±5.5.

CONCLUSIONS: CCHT is an effective method for monitoring patient outcomes more closely. On average patients who were enrolled in CPS clinics plus CCHT showed improvement in their A1c, and frequent hypoglycemic events were identified and addressed.

C Optimal timing of non-vitamin K oral anticoagulant initiation in patients with pulmonary embolism after catheter-directed thrombolysis

Presenters: Uma Patel

TITLE: Optimal timing of non-vitamin K oral anticoagulant initiation in patients with pulmonary embolism after catheter-directed thrombolysis

AUTHORS: Uma Patel, Mary Katherine Stuart, Megan Autrey, Nathan Pinner, Thomas Achey

OBJECTIVE: Define the optimal timing of oral anticoagulation initiation post-Ekasonic Endovascular System (EKOS) procedure in patients with pulmonary embolism (PE).

SELF ASSESSMENT QUESTION: Is it safe to initiate NOAC < 12 hours after EKOS?

BACKGROUND: In patients with pulmonary embolism (PE) who receive EKOS, American College of Chest Physicians has recommended parenteral anticoagulation following catheter-directed thrombolysis with a transition to either warfarin or NOAC. NOACs are now drug of choice in non-cancer related venous thromboembolism events (DVT/PE) and several studies have evaluated NOACs versus warfarin in post-EKOS, however the optimal timing of initiation of oral anticoagulation is largely unknown. The purpose of this study was to evaluate the optimal timing, in regards to safety and efficacy, of NOAC initiation post-EKOS.

METHODOLOGY: Patients > 18 years of age who underwent an EKOS procedure for submassive or massive PE, followed by administration of NOAC therapy were included. The primary outcome was a composite of major bleeding and recurrent VTE events during hospitalization following EKOS. Secondary outcomes included individual components of the primary outcome, minor bleeding, hospital LOS, and in-hospital mortality. Endpoints were compared between two groups who received their first dose of NOAC either 0-12 hours (early) or greater than 12 hours (delayed) after EKOS sheath pull.

RESULTS: 59 patients included in the early group and 4 patients included in the delayed group. Primary outcome observed in two patients in the early group (p-value = 0.714). Secondary outcomes observed in the early group (p-value = 0.797). Hospital length of stay was an average of 5-6 days (p-value = 0.794).

CONCLUSIONS: No statistically or clinically significant difference in initiating NOAC therapy either early or delayed after sheath pull. Risk of current VTE and bleeding events of 1.7% falls within range of 0-5% seen in previous studies, however larger studies are needed to definitively assess optimal timing of NOAC initiation.

Video Presentation: <https://vimeo.com/538844689>

R Evaluation of de-resuscitation using albumin with loop-diuretics in critically ill adults (DUAL-study)

Presenters: Theodore Vaggalis

TITLE: Evaluation of de-resuscitation using albumin with loop-diuretics in critically ill adults (DUAL-study)

AUTHORS: Theodore C. Vaggalis, W. Anthony Hawkins, Susan E. Smith, Erin Waldee

OBJECTIVE: Describe how albumin may enhance the effect of loop diuretics for de-resuscitation.

SELF ASSESSMENT QUESTION: What mechanistic pathways may allow albumin to enhance the effect of loop diuretics for de-resuscitation?

BACKGROUND: Albumin is sometimes prescribed in combination with loop diuretics to augment the diuretic effect in order to mitigate the harm from fluid overload. Heterogeneous patients and various dosing strategies have led to conflicting findings. This study aims to determine factors associated with responding to de-resuscitation using albumin with loop diuretics (DUAL-therapy) in critically ill patients.

METHODOLOGY: This is a single-center, IRB-approved, retrospective cohort study of adult patients admitted to an intensive care unit between January 2016 and August 2020. Patients were included if they received albumin within 3 hours of the loop diuretic. For patients who received DUAL-therapy more than once, only the first occurrence was included. Patients were dichotomized into two groups: responders (having a change in total urine output of at least 600 milliliters within six hours following DUAL-therapy) and non-responders. The primary outcome was to determine which factors may influence response to therapy. The secondary outcomes included the incidence of progression to renal replacement therapy (RRT), hypokalemia (K <3.5mEq/L), hyponatremia (Na <135mEq/L), hypochloremia (Cl <96mEq/L), and metabolic alkalosis (pH >7.45/paCO2 35-45mmHg/HCO3 >24mEq/L) following DUAL-therapy among the two groups.

RESULTS: 98 total patients were included in this study; 46 (47%) responders and 52 (53%) non-responders. After completing the multivariate logistic regression, urine output 24hrs prior to therapy was the only factor associated with a statistically significant finding for responding to therapy (OR=2.54, 95% CI= 1.28-5.06, p-value= 0.008). There were no statistically significant findings among secondary outcomes between the two groups.

CONCLUSION: Results indicate that having a higher urine output 24hrs prior to therapy is associated with responding to therapy. Further research is warranted.

Link to Recording: https://drive.google.com/file/d/1V0wzshozNX4o-zv1cKkdA6ms37aq1Cb_/view?usp=sharing

R Evaluation of nursing education on initiation of guideline-directed management of mechanically ventilated patients in the Emergency Department

Room C

Presenters: Lauren Mullen

TITLE: Evaluation of nursing education on initiation of guideline-directed management of mechanically ventilated patients in the Emergency Department

AUTHORS: Lauren Mullen, Stephanie Allen, Cassey Starnes, Ryan Green, Shaun Rowe

OBJECTIVE: Recognize the goals of pain and sedation management following mechanical ventilation in the ED setting

SELF ASSESSMENT QUESTION: Which of the following is a recommended intervention for a patient recently initiated on mechanical ventilation in the ED requiring sedation? A. Initiate patient on appropriate fluids to sepsis guidelines B. Initiate pain control to achieve provider-directed RASS score C. Initiate patient on appropriate antimicrobial therapy D. Initiate corticosteroid therapy to aid in respiratory distress

BACKGROUND: Evaluate if a pharmacist-led nursing education results in more timely initiation of guideline-directed pain and sedation management in mechanically ventilated patients in an Emergency Department (ED).

METHODOLOGY: This is a retrospective quasi-experimental cohort study evaluating the timeliness of initiation of a guideline-directed pathway for mechanically ventilated patients in the ED after pharmacist-led education of ED nurses. The intervention in September 2020 included ED nursing education by pharmacists followed by a washout period of one month. Education consisted of presentations during huddles, handouts, and screenshots of how to order the designated pathway for their patient in the electronic health record (EHR). Pre-intervention EHR data was collected from November 2018-June 2020 and post-intervention EHR data will be collected from November 2020 to February 2021.

RESULTS: In progress

CONCLUSIONS: In progress

I Impact of Early vs. Late vs. No Infectious Disease Consultation on the Treatment of Staphylococcus aureus Bacteremia

Room I

Presenters: Christopher Snider

TITLE: Impact of Early vs. Late vs. No Infectious Disease Consultation on the Treatment of Staphylococcus aureus Bacteremia

AUTHORS: Christopher Snider, Stephanie Milliken, Jessica Michal, Kyle Ames

OBJECTIVE: Identify potential interventions that can improve the management and outcomes of patients with SAB

SELF ASSESSMENT QUESTION: How has the timing of IDC impacted the management of SAB?

BACKGROUND: Staphylococcus aureus bacteremia (SAB) is associated with significant morbidity and mortality.

Earlier initiation of appropriate antibiotics and infectious disease consult (IDC) has demonstrated improved outcomes in patients with SAB; however, the optimal time to IDC after SAB diagnosis remains unclear. The aim of this project is to assess the percentage of adherence to best practice guidelines and the effect on clinical outcomes between early IDC (within 24 hours of positive culture), late IDC (24 hours or later after positive culture), and no IDC in the management of SAB. Best practice guideline components include: source identified, source controlled, transthoracic echocardiogram and/or transesophageal echocardiogram performed, repeat blood cultures drawn at least every 96 hours until negative for S. aureus, and antibiotic optimization.

METHODOLOGY: This retrospective cohort includes patients at least 18 years old at time of specimen collection who had one or more blood cultures with S. aureus collected between 01/01/2017 and 09/30/2020 at McLeod Regional Medical Center. Percent adherence to best practice guideline components were compared between the three groups. Time to microbiological clearance, duration of therapy, recurrence of SAB, length of stay, and 30-day all-cause mortality and readmission will be evaluated as secondary outcomes.

RESULTS: In Progress

CONCLUSIONS: In Progress

I Impact of rapid diagnostic blood culture identification panels on empiric use of broad-spectrum antimicrobials for select Gram-negative pathogens in a community hospital

Room H

Presenters: Tristyn Cartrette

TITLE: Impact of rapid diagnostic blood culture identification panels on empiric use of broad-spectrum antimicrobials for select Gram-negative pathogens in a community hospital

AUTHORS: Tristyn Cartrette, April Dyer, Eric Locklear

OBJECTIVE: Describe the impact of BIOFIRE BCID panels on antibiotic de-escalation times and appropriateness.

SELF ASSESSMENT QUESTION: Which of the following statements is FALSE?

BACKGROUND: To determine if the use of BIOFIRE Blood Culture Identification (BCID) panels reduces the median duration of unnecessary broad-spectrum antimicrobial agent use for patients with BCID results that are positive for select Gram-negative pathogens and to evaluate the safety of the empiric antimicrobial therapy selections on the BCID algorithm implemented by UNC Health Southeastern.

METHODOLOGY: This retrospective cohort study was conducted at UNC Health Southeastern and evaluated 30 patients from each of two time periods: pre-intervention phase that evaluates care for the study population prior to BCID intervention (April 1, 2019 – September 30, 2019) and post-intervention that evaluated the study population after BCID implementation (April 1, 2020 – September 30, 2020). The study included inpatients ≥ 18 years of age who had a positive blood culture for one of the following Gram-negative organisms: *E. coli*, *K. pneumoniae*, *K. oxytoca*, *P. aeruginosa*, *S. marcescens*. Patients were excluded if they had polymicrobial blood cultures or were growing additional organisms at other sites. Additional exclusion criteria included hospital discharge prior to BCID results or patients requiring additional antimicrobial therapy for another indication.

RESULTS: All study outcomes showed no statistical differences in optimal regimens within 48 hours or appropriate changes in therapy after BCID implementation. It was found that after BCID implementation patients were exposed to more antimicrobial agents, however time from blood draw to organism identification did decrease slightly.

CONCLUSION: The implementation of BCID panels did not improve the time to appropriate antimicrobial therapy for patients with monomicrobial bloodstream infections that were admitted to the hospital at UNC Health Southeastern. A prospective study after provider education is warranted to further assess if the implementation of BCID panels is effective in streamlining antimicrobial therapies.

<https://youtu.be/YQJ-RlaOk3g>

L Bleeding risk associated with dual antiplatelet therapy in percutaneous endoscopic gastrostomy tube placement

Room E

Presenters: Hannah Leschorn

TITLE: Bleeding risk associated with dual antiplatelet therapy in percutaneous endoscopic gastrostomy tube placement

AUTHORS: Hannah Leschorn, Stella Ye, Olivia Morgan

OBJECTIVE: Describe the bleeding risk associated with PEG tube placement while continuing P2Y12 inhibitor

SELF ASSESSMENT QUESTION: What were the differences in composite bleeding events among patients that had a P2Y12 inhibitor held vs. continued prior to PEG tube placement?

BACKGROUND: Percutaneous endoscopic gastrostomy (PEG) tubes are frequently recommended for patients with dysphagia or inadequate oral intake. It is common for patients undergoing PEG procedures to be on dual antiplatelet therapy (DAPT) with aspirin and a P2Y12 inhibitor for ischemic neurologic or cardiovascular indications. PEG placement on DAPT is not advised due to possible high endoscopy-induced bleeding risk with recommendations to hold P2Y12 inhibitors while continuing aspirin monotherapy at least 5 days prior to the procedure. Clinical practice may differ from these recommendations and there is limited literature on bleeding risk associated with continuation of DAPT peri-endoscopy.

METHODOLOGY: A single-center, retrospective, medical record review was conducted on patients who received ≥ 1 dose of DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, prasugrel, or ticagrelor) ≤ 8 days prior to PEG placement between July 1, 2017 – June 30, 2020. Patients were excluded if they received concomitant therapeutic anticoagulation 7 days leading up to PEG placement or in the 48 hours following the procedure.

RESULTS: A total of 74 patients (37 patients in the aspirin group, 37 patients in the aspirin + P2Y12 group) met inclusion criteria. The primary composite outcome of major and minor bleeding in patients receiving aspirin versus aspirin + P2Y12 were 3 (8.1%) and 5 (13.5%), respectively ($p = 0.454$). There was no significant difference in hospital length of stay between the two groups ($p = 0.116$). In patients undergoing PEG on aspirin monotherapy, 11.8% of patients were bridged with tirofiban.

CONCLUSIONS: There were no significant differences in composite bleeding rates among patients who underwent PEG placement on aspirin versus aspirin + P2Y12 inhibitor.

https://static.sched.com/hosted_files/2021southeasternresidency/df/SERC_DAPT%20in%20PEG_Leschorn.mp4

Presenters: Heather Dalton

TITLE: Evaluation of the Impact of a Pharmacy Transitions of Care Program

AUTHORS: Heather Dalton, Emily Moose, Molly Hinely

OBJECTIVE: Determine the impact of pharmacist-driven transitions of care inpatient rounding and post-discharge outreach on number of hospitalizations and emergency department visits

SELF ASSESSMENT QUESTION: What is the impact of a pharmacy transitions of care program on number of hospitalizations and emergency department visits?

BACKGROUND: Transitions of care has come to the forefront of healthcare systems around the United States, as reimbursement models have changed based on patient readmission rates. Research shows benefit of pharmacist-driven transitions of care on adherence, medication discrepancies, and adverse events. However, there is a lack of research regarding the impact of transitions of care pharmacists alone on hospitalizations, emergency department visits, and hospital-admission cost savings. The purpose of this study is to determine the impact of a pharmacist-driven transitions of care program at an academic medical center.

Transitional Inpatient Rounding Experience (TIRE) is a pharmacist-driven transitions of care program at Wake Forest, in which pharmacy residents provide motivational interviewing patients who are at a high-risk for readmission to identify causes of potential medication-related readmissions at discharge. They will then complete a post-discharge follow-up call to resolve medication related issues that may have occurred during transitions of care.

METHODOLOGY: A single-center, retrospective cohort study was conducted via a pre- and post- intervention analyses. The data collection periods included 30 and 90 days within the date of intervention. Patients were excluded if they were pediatric, hospice, discharging to a facility, died within 90 days of intervention, or did not have a hospitalization within 90 days prior to the intervention. The primary outcome is the 30-day number of hospitalizations, compared with the rate of hospitalizations occurring prior to the intervention. Secondary outcomes include 90-day number of hospitalizations, 30-day number of emergency department visits, 90-day number of emergency department visits, and hospital cost-savings through reduction of hospitalizations.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Emelia Beam

TITLE: Assessing the Need for A Pharmacist-Led Mental Health Service

AUTHORS: Emelia Beam, Patti Fabel

OBJECTIVE: The objective of this study is to assess the need for establishing pharmacist-led mental health services at an employer-based medical center and pharmacy.

SELF ASSESSMENT QUESTION: What is the most prescribed agent at the site?

BACKGROUND: Mental disorders are known to affect mental, behavioral, and emotional wellbeing.¹ The impact of a mental disorder depends on the individual, and their symptoms can vary from no impairment to severe impairment affecting daily activities. In the United States alone, about 46.6 million adults have a mental illness with only 43.3% receiving treatment.² It is important to manage and treat illness as it increases the risk of long-term conditions including heart disease and diabetes. With Covid-19, the risk of mental disorder has increased. To make sure that employees, spouses, and dependents' mental needs are met, we wanted to investigate what gaps in care, the percentage of individuals diagnosed with mental health, and on a psychotropic for treatment.

METHODOLOGY: Regarding this retrospective chart review, patients will be included if they received a prescription for a psychotropic agent or diagnosed with a mental disorder. The data for this study will be pulled from the electronic medical record. Data pulled will be from October to December 2020. Demographic information such as age, gender and race will be collected and will be used to evaluate the characteristics of employees, spouses, and dependents. Psychotropics agents and mental disorder diagnoses will collected as well. Data from the pulled reports will be analyzed using descriptive statistics measures of central tendency and variability to determine frequency and percentages. Secondary endpoint that will be evaluated as well will be the prescription patterns of providers onsite, as well as comparing and contrasting mental health disorders and diabetes in term of prescriptions filed and associated cost

RESULTS: Anxiety disorder was the most common diagnosis requiring a psychotropic agent. Stress and sleep disorders were some of the most common diagnoses found in our study. Of note, Escitalopram was the most prescribed agent for the treatment of mental disorder. Cost associated with mental disorder was also analyzed, and our study found a roughly 30% increase from 2019 to 2020, the largest increase aside from infections due to COVID-19.

CONCLUSIONS: There is a need for a mental health service at the site. Anxiety disorder is a prevalent mental disorder treated at the site. Based on this, we can target mental health services to focus on patients with an anxiety diagnosis at as a starting point.

B Evaluation of Pharmacist-Driven Remote Patient Monitoring (RPM) in a Primary Care Setting Within a Community Health System during the Covid-19 Global Pandemic

Room K

Presenters: Kristen Pierce

TITLE: Evaluation of Pharmacist-Driven Remote Patient Monitoring (RPM) in a Primary Care Setting Within a Community Health System during the Covid-19 Global Pandemic

AUTHORS: Kristen Pierce, Melissa Johnson, Allison Presnell, Kelsey Martin, Beth Clements, Ashley Woodhouse

OBJECTIVE: After this presentation, the participant will define the financial effect of pharmacist-performed RPM in our health system.

SELF ASSESSMENT QUESTION: Which code is commonly used to bill for remote patient monitoring?

BACKGROUND: Remote Patient Monitoring (RPM) is used to prevent patient care gaps and optimize clinical outcomes using digital interfaces. This service is not tele-health therefore does not require a designated originating site in rural regions and can be provided to patients at home. In March 2019, pharmacists gained the ability to provide services billed incident-to physician or non-physician practitioner. When Medicare Physician Fee Schedule (PFS) aligned with the Public Health Emergency (which decreased face to face patient care) and stated only general supervision was required, RPM became an attractive opportunity for pharmacists to expand patient care for their supervising physicians and St. Joseph's/Candler (SJC) pharmacists utilized this opportunity beginning in March 2020 after privileges for RPM were expanded by the health system.

METHODOLOGY: This retrospective, observational study evaluated encounters of patients contacted for RPM. A computer-generated list identified 99457 RPM codes billed by SJC Primary Care from April 1st to September 30th, 2020. Subjects were identified through eClinicalWorks. Encounters were evaluated based on disease state and intervention.

RESULTS: Using average estimated revenue of \$49.50 per 99457, SJC revenue increased by approximately \$5,400 during 109 encounters. Pharmacists were involved in 72% of encounters and generated around \$3,800. Diabetes was encountered most often (64 patients) and interventions completed most frequently included medication initiations and dosage increases.

CONCLUSIONS: RPM within primary care offices of community health-systems provides another viable option to promote patient care and generate revenue. Annual updates to the PFS can change requirements to any HCPCS or CPT code. The 2021 update for RPM services requires at minimum, a real-time synchronous, two-way audio interaction that is capable of being enhanced with data transmission. Utilizing pharmacists to provide this service is a unique opportunity to provide pharmacist value in a virtual health care setting.

Link to presentation - <https://www.youtube.com/watch?v=PJEjpVXBmT4>

C The Incidence of Venous Thromboembolism After Heart Transplantation

Room D

Presenters: Katherine Anderson

TITLE: The Incidence of Venous Thromboembolism After Heart Transplantation

AUTHORS: Katherine Anderson, Chris Larkin, Robin Tagatz, Caroline Gatzke, Kyle Stribling, Ashok Babu

OBJECTIVE: Identify the incidence of VTE in heart transplant recipients and compare efficacy of prophylaxis methods.

SELF ASSESSMENT QUESTION: How does the risk of VTE in heart transplant recipients at ASTW compare to previous literature and should more aggressive prophylaxis measures be used?

BACKGROUND: VTE is a common postoperative complication following non-minor surgical procedures, leading to increased morbidity and mortality. The incidence of VTE after heart transplantation has been reported as high as 9.3%. Current guidelines for VTE prophylaxis in heart transplant patients are unclear, most being non-specific to transplantation. The lack of clear recommendations and the high bleeding risk during surgery leads to reluctance to prescribe pharmacologic prophylaxis.

METHODOLOGY: Medical records were reviewed following discharge for patients who underwent heart transplantation at Ascension Saint Thomas Hospital West (ASTW) between May 1, 2016 and September 30, 2020. Patients were excluded if they required postoperative full-dose anticoagulation, except for postoperative VTE, or if they had a heart transplant in conjunction with another organ.

RESULTS: The incidence of VTE at ASTW was 13%, and most patients experiencing an upper extremity DVT (58%). Sequential compression devices (SCDs), were ordered for all patients. Of the 89 patients included, 2 patients received both SCDs and pharmacologic prophylaxis. One characteristic associated with VTE was the use of hemostatic agents intraoperatively. Thirty-three percent of patients who received recombinant factor VII developed a VTE postoperatively. Also, patients who had longer lengths of stay prior to transplantation were more likely to develop a VTE.

CONCLUSIONS: The incidence of VTE after heart transplantation at ASTW is higher than that reported in the literature, indicating that a more aggressive approach to VTE prophylaxis may be necessary.

<https://youtu.be/5yxXzQpmXl4>

Presenters: Ashley Hall

TITLE: Impact of Eat, Sleep, Console Process on Morphine Usage in Neonatal Abstinence Syndrome

AUTHORS: Ashley Maegan Hall

OBJECTIVE: The purpose of this study was to determine the impact of a novel therapeutic algorithm in the treatment of infants with neonatal abstinence syndrome (NAS).

SELF ASSESSMENT QUESTION: Will implementation of the Eat, Sleep, Console (ESC) protocol reduce morphine utilization for treatment of NAS compared with use guided by Finnegan scores?

BACKGROUND: Utilization of the symptom-based Finnegan Neonatal Abstinence Scoring System (FNASS) for guidance of NAS treatment is associated with increased hospital length of stay (LOS) and pharmacologic initiation. Implementation of the novel ESC protocol, which evaluates the patient's functional ability, has demonstrated beneficial reductions in these outcomes via emphasis on non-pharmacologic treatment. The aim of this study was to evaluate how implementation of the ESC protocol impacted morphine utilization and duration of hospitalization for patients with NAS.

METHODOLOGY: This was a retrospective study comparing therapeutic interventions and outcomes of NAS patients guided by the ESC protocol to those guided by FNASS scores. The ESC protocol was implemented at our facility June 1, 2020. A pre-implementation cohort included patients born at the facility between June 1 and December 31, 2019 who received morphine for treatment of NAS or had a drug screen indicative of opioid exposure. A post-implementation cohort included patients born at the facility between June 1 and December 31, 2020 who were treated utilizing the ESC protocol. Patients receiving morphine for any other indication were excluded from the study. The primary endpoint was duration of morphine therapy. Secondary endpoints included quantity of morphine doses administered, maximum morphine dose required, and LOS.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presentation Link: <https://youtu.be/bDZJkrSEKcw>

Presenters: Sara A. Scott

TITLE: Risk factors for hypoglycemia in critically ill surgical patients on an insulin infusion

AUTHORS: Sara A. Scott; Kelli Rumbaugh

OBJECTIVE: To describe risk factors for hypoglycemia while receiving an insulin infusion

SELF ASSESSMENT QUESTION: Acute kidney injury is a risk factor for severe hypoglycemia while on an insulin infusion (True/False)?

BACKGROUND: Glycemic control in critically ill surgical patients has been shown to decrease post-operative infections and potentially decrease mortality, while hyperglycemia and glucose variance have been associated with increased mortality in this population. The insulin infusion protocol at Vanderbilt University Medical Center (VUMC) has demonstrated significantly less severe hypoglycemia (blood glucose 18 years old admitted to the surgical intensive care unit or cardiovascular intensive care unit and initiated on an insulin infusion between January 1, 2018 and July 31, 2020. The primary outcome was the incidence of severe hypoglycemia (BG < 40 mg/dL), and a logistic regression analysis will be used to assess independent predictors for severe hypoglycemia. Secondary outcomes included the incidence of at least one BG greater than 180 mg/dL, between 150 to 180 mg/dL, between 70 to 150 mg/dL, and less than 70 mg/dL and the absolute number of BG values in these ranges, glucose variance, ICU mortality, hospital mortality, ventilator-free days, and protocol violations. All statistics were performed using SPSS version 26. Categorical values were analyzed using chi-square and continuous values using Mann-Whitney U.

RESULTS: In progress

CONCLUSIONS: In progress

Video Link: https://youtu.be/Bumh-U6uM_0

I Evaluating Characteristics and Outcomes of COVID-19 Inpatients Treated at the Ralph H. Johnson VAMC

Room H

Presenters: Allison Kuhn

TITLE: Evaluating Characteristics and Outcomes of COVID-19 Inpatients Treated at the Ralph H. Johnson VAMC

AUTHORS: Allison Kuhn, David Deen, Katherine Pleasants, David Taber

OBJECTIVE: Describe the clinical characteristics and outcomes of COVID-19 inpatients treated at the Ralph H. Johnson VA Medical Center (RHJ VAMC)

BACKGROUND: The purpose of this quality improvement initiative was to evaluate the clinical characteristics and outcomes of COVID-19 inpatients with a focus on ICU admission status and timing of remdesivir initiation in relation to symptom onset.

METHODOLOGY: A retrospective chart review was performed to identify clinical characteristics and outcomes in hospitalized patients diagnosed with COVID-19 at RHJ VAMC between April 1 and September 30, 2020. A sub-group analysis including patients who received remdesivir was performed to identify potential differences in clinical outcomes.

RESULTS: One hundred six inpatients with confirmed COVID-19 were hospitalized from April 1 to September 30, 2020; 45 patients (42%) were admitted to the ICU during hospitalization. Those admitted to the ICU had higher systolic and diastolic blood pressures at admission and throughout hospitalization, higher D-dimer values at presentation, and higher D-dimer and procalcitonin peak values compared to inpatients not admitted to the ICU.

66 inpatients (62%) received remdesivir. Those admitted to the ICU received remdesivir a median of 7 days after initial symptom onset, compared to 4 days for non-ICU patients.

Each day that passes from the start of symptom onset to remdesivir initiation increases the risk of an ICU admission by 9.6%. Initiating remdesivir more than 7 days after symptom onset increases the odds of ICU admission by 3.6 times and death during hospitalization by 11.5 times.

CONCLUSIONS: Delayed remdesivir initiation increases the risk of ICU admission and death during hospitalization.

SELF ASSESSMENT QUESTION: Which of the following are factors that can increase a patient's risk of COVID-19 disease progression?

I VANCOMYCIN AUC24/MIC DOSING PILOT USING BAYESIAN CALCULATOR SOFTWARE PROGRAM IN A SINGLE-CENTER COMMUNITY HOSPITAL

Room I

Presenters: Katherine Olsen

VANCOMYCIN AUC24/MIC DOSING PILOT USING BAYESIAN CALCULATOR SOFTWARE PROGRAM IN A SINGLE-CENTER COMMUNITY HOSPITAL

Katherine A Olsen PharmD, Jessica Space, PharmD BCIDP, Dumitru Sirbu, PharmD

Ascension St. Vincent's Birmingham Hospital-Birmingham, AL

Background/Purpose: Investigate feasibility and safety of a Bayesian vancomycin calculator as the primary vancomycin dosing and monitoring system at Ascension St. Vincent's Birmingham in accordance with IDSA's standards of vancomycin dosing.

Methodology: Eligible adults who had intravenous vancomycin consults for pharmacy dosing with infectious indications other than meningitis/ventriculitis were dosed via a subscription Bayesian vancomycin calculation software during a three week trial. Patient data, information on AUC based dosing, and rates of acute kidney injury were collected. Acute kidney injury data was compared to previous trough-based vancomycin consults. Pharmacists were asked to complete surveys on consult completion time and satisfaction to identify implementation obstacles.

Results: The average time taken for completion of a vancomycin consultation with the AUC based dosing versus trough based dosing were 14.07 minutes and 9.47 minutes, respectively. Ten pharmacists filled out a user survey. Of the ten, nine of them felt that the Bayesian software recommendations were safe.

Conclusions: A Bayesian vancomycin AUC based dosing was trialed for three weeks. There was overall pharmacist satisfaction with the Bayesian software. Barriers of implementation of a Bayesian vancomycin software included mindset change, interprofessional education, and pharmacist training.

T Transitions of care pharmacist impact on readmission and use of a novel readmission risk assessment tool in hospitalized heart failure (HF) patients Room A

Presenters: Arrington Mason-Callaway

TITLE: Transitions of care pharmacist impact on readmission and use of a novel readmission risk assessment tool in hospitalized heart failure (HF) patients

AUTHORS: Arrington D. Mason-Callaway, Quwana Clemons

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the predictive value of the LAMPS score for 30-day HF readmission in comparison to the predictive value of the mLACE score and describe the contribution of TOC pharmacist intervention in preventing HF readmission.

SELF ASSESSMENT QUESTION: The LAMPS scoring tool incorporates both clinical and socioeconomic parameters to predict 30-day readmission risk. TRUE/FALSE (Answer: TRUE)

BACKGROUND: There is an unmet need for an effective scoring tool, incorporating clinical and socioeconomic parameters, with robust predictive power of 30-day readmission risk for an acute exacerbation of HF. The purpose of this study is to compare the predictive value for 30-day HF readmission risk of a novel assessment tool (LAMPS) versus the modified-LACE scoring tool among HF patients discharged from a community hospital following admission for an acute HF exacerbation. This study will also capture the contribution of transitions of care (TOC) pharmacist interventions in preventing HF readmission.

METHODOLOGY: This is a single-center, retrospective, randomized chart review of adult patients (N = 200) admitted to Wellstar Cobb Hospital with an acute HF exacerbation from January 1, 2019 to December 31, 2019. Patients with primary International Classification of Diseases (ICD-10) codes for acute exacerbation of HF or new HF diagnosis will be identified using the electronic medical record and risk for HF readmission will be assessed using both the LAMPS and modified-LACE scoring tool. The primary endpoints are the positive and negative predictive value of readmission with an acute HF exacerbation within 30 days of discharge from the index encounter. The secondary endpoint is the incidence of readmission with an acute HF exacerbation within 30 days of discharge from the index encounter in patients who received TOC pharmacist services (≥ 1 of the specified TOC pharmacist activities) versus those who did not receive TOC pharmacist services.

RESULTS: In progress

CONCLUSIONS: In progress

A Development, Implementation, and Evaluation of an Inpatient Warfarin Management Education Program for Pharmacists in a Community Hospital Room G

Presenters: Felix Okotete

TITLE: Development, Implementation, and Evaluation of an Inpatient Warfarin Management Education Program for Pharmacists in a Community Hospital

AUTHORS: Felix Okotete, Jae Yook, Katy Walton, Jamie McCarthy

OBJECTIVE: Describe the development and implementation of the IWME program and identify its impact in inpatient warfarin management for pharmacists.

SELF ASSESSMENT QUESTION: Which component(s) of the assessment did show statistically significant improvement after the implementation of the IWME program?

BACKGROUND: Multiple dynamic factors make warfarin management a challenge when optimizing its dosing. In our hospital, clinical pharmacists manage warfarin past the initial dose verification. The purpose of this study is to develop, implement, and evaluate an inpatient warfarin management education (IWME) program for staff pharmacists.

METHODOLOGY: This single-center, pre-post interventional cohort study included full-time staff pharmacists who had documented at least one initial warfarin consult note in the electronic medical record between December 15, 2019 and February 15, 2020. A program was developed for education about general knowledge, management, and counseling of warfarin. An assessment was created to compare between pre- and post-intervention groups. The primary outcome was the composite score of multiple-choice questions, patient cases, and counseling. Secondary outcomes included individual components of the assessment and a self-assessed competency survey. Subsequently, randomly selected initial warfarin consult notes were compared.

RESULTS: The composite score was approximately 6 points higher in the post-intervention group than in the pre-intervention group (median [IQR] composite score out of 72 points: post-intervention 49.44 [44.35-56.13] points vs pre-intervention 43.81 [36.86-45.59] points, $p=0.002$). The post-intervention group scored 14% higher in multiple-choice questions ($p=0.02$) and 54% higher in counseling ($p=0.002$). The self-assessed competency survey score was 1 point higher in the post-intervention group (median [IQR] survey out of 5 points: post-intervention 3 [2-3] points vs pre-intervention 2 [2-2] points, $p=0.026$). While the post-intervention group documented indications 21% more correctly in initial consult notes ($p=0.036$), other data showed no difference.

CONCLUSIONS: The IWME program improved pharmacists' performance on the assessment and increased competence in inpatient warfarin management. Further education in initial consult note documentation is desired.

Video Recording of Presentation: www.youtube.com/watch?v=ELSiZ0mVxZw

Presenters: Anna Love

TITLE: Pharmacist-driven antidiabetic medication de-escalation in patients with well controlled diabetes

AUTHORS: Anna Love, Brian Leonard, Blake Johnson

OBJECTIVE: Explain pharmacist role in de-escalating antidiabetic medications for patients with well controlled diabetes.

SELF ASSESSMENT QUESTION: Which scenario would be the least appropriate for pharmacist intervention to de-escalate antidiabetic medications? A. Patient on insulin and sulfonylurea with A1c of 6.3% B. Patient who also has heart failure on metformin and empagliflozin with A1c of 6.5% C. Patient on metformin, DPP4, and GLP-1 with A1c of 6.4%

BACKGROUND: Expenditures on patients with diabetes account for over \$320 billion of United States health care costs and continues to rise. While hyperglycemia and associated effects account for a significant portion of these costs, it is also important to consider the cost of overly controlled patients with diabetes. Specifically, the effects of hypoglycemia and unnecessary medications contribute to this economic burden. The role for pharmacist in managing uncontrolled diabetes is well established, proving reduction of A1c is greater in pharmacist managed groups compared to usual care. Unfortunately, the role for pharmacists in patients with overly controlled diabetes is less defined. Thus, this study's purpose is to evaluate pharmacists' involvement in the de-escalation of therapy for patients below their A1c goals.

METHODOLOGY: Ambulatory Care Pharmacists at our center are currently provided with quality metrics data from third party insurers regarding quality performance measures. Pharmacists use the data provided to work in conjunction with the respective providers to develop, implement, and monitor pharmacotherapy plans to ultimately improve the quality of care provided. Ambulatory Care Pharmacists continue to follow patients not meeting quality metrics with insurers until care has been optimized. This project is designed to evaluate the impact of Ambulatory Care Pharmacists retrospectively on the quality measures data with assessments at three-month intervals from the index pharmacist intervention.

This study is a retrospective chart review of pharmacist recommended de-escalation in antidiabetic medication regimen. Patients with diabetes with a A1c \leq 6.5% who had at least one pharmacist recommended de-escalation in antidiabetic medication regimen are included. Patients are excluded if < 18 years old, pregnant, or Type 1 Diabetic. The primary outcome is change in hypoglycemic events (reported via clinic correspondence, hospitalization with chief complaint of hypoglycemia, and/or Emergency Department visit for hypoglycemia). Secondary outcomes include medication cost difference to patient and/or payer, maintenance of A1c goal, and any adverse effects other than hypoglycemia experienced during the study period.

<https://youtu.be/n2uIHtwVEOQ>

Presenters: Leanne Lagroon

TITLE: Apixaban versus warfarin for the treatment of venous thromboembolism in morbidly obese patients

AUTHORS: Leanne Lagroon, Madeleine Tilley, Lisa Gibbs

OBJECTIVE: Evaluate the clinical outcomes of apixaban compared to warfarin in the treatment of VTE in morbidly obese patients.

SELF ASSESSMENT QUESTION: What is the maximum weight/BMI for apixaban as recommended by the 2016 ISTH guidelines?

BACKGROUND: Direct oral anticoagulants (DOACs) have become increasingly popular choices for the treatment of venous thromboembolism (VTE) over the past decade. DOACs offer many advantages over warfarin including a lower incidence of bleeding, ease of fixed dosing, and a lack of routine monitoring requirements. However, few studies have evaluated the safety and efficacy of DOACs in morbidly obese patients.

METHODOLOGY: This single-center retrospective chart review compared morbidly obese adult patients diagnosed with a VTE and treated with apixaban to those treated with warfarin. The primary endpoint was VTE recurrence within 12 months. Secondary outcomes include pulmonary embolism or deep vein thrombosis individually in the first 12 months, major bleeding or clinically relevant minor bleeding defined by ISTH criteria, mortality, and switch to another anticoagulant.

RESULTS: 58 patients were included in the study. 15 received warfarin and 43 patients received apixaban. 2 patients (13.3%) in the warfarin group and 3 patients (6.98%) in the apixaban group experienced a recurrent VTE ($p=0.596$). 2 (13.3%) vs 1 (2.3%) patients experienced a clinically relevant minor bleed ($p=0.161$). The patients in the warfarin group had a significantly higher BMI (50.7 kg/m² vs 43.9 kg/m² [$p=0.036$]) and weight (150 kg vs 130.3 kg [$p=0.039$]) than the patients in the apixaban group.

CONCLUSIONS: There was no statistically significant difference in recurrent VTE between patients taking warfarin and apixaban. Although not statistically significant, patients taking warfarin trended towards higher rates of major and clinically relevant minor bleeding.

Presenters: Devin Josey

TITLE: Early versus Delayed Weight-Based Basal Insulin in Diabetic Ketoacidosis

AUTHORS: Devin Josey, Kristen Womble-Smith

OBJECTIVE: At the conclusion of my presentation, the participant will be able to explain if the addition of early weight-based basal insulin has a benefit in patients with diabetic ketoacidosis.

SELF ASSESSMENT QUESTION: Does early weight-based basal insulin reduce the time to anion gap closure in diabetic ketoacidosis?

BACKGROUND: The purpose of this study is to assess the current diabetic ketoacidosis protocol at Southeastern Regional Medical Center to determine if early administration of basal insulin in conjunction with a regular insulin infusion will reduce the time to anion gap closure, intensive care unit length of stay, hypoglycemic episodes, and evaluate the rate of rebound hyperglycemia and diabetic ketoacidosis.

METHODOLOGY: Patients were assigned to receive either standard therapy with a continuous regular insulin infusion (per institution approved protocol) or interventional therapy with a continuous regular insulin infusion (per protocol) and early weight based basal insulin. The weight-based dose was 0.25 units per kilogram and the basal insulin utilized was insulin glargine (Lantus). Basal therapy must have been initiated within 6 hours of the start of the insulin infusion. Patients were excluded if pregnant, on mechanical ventilation, had septic shock, were surgical patients, had chronic renal disease requiring hemodialysis, had severe chronic lung disease requiring corticosteroids, or were COVID-19 positive.

RESULTS: 32 of 52 patients evaluated met inclusion criteria. Of these patients, 26 were assigned to the standard therapy arm and 6 were assigned to the intervention arm. The primary outcome (rebound diabetic ketoacidosis) occurred in 6 patients (23.1%) in the standard therapy arm and 1 patient (16.7%) in the intervention arm (P=0.84). Time to anion gap closure was not significantly different between the two groups, with averages of 9.5 hours in the standard therapy arm and 6.9 hours in the intervention arm (P=0.27).

CONCLUSIONS: Early administration of basal insulin in conjunction with an insulin infusion did not have a significant reduction in rebound hyperglycemia and DKA, time to anion gap closure, intensive care unit length of stay, or hypoglycemic episodes.

https://youtu.be/QgfN5V5e6_k

Presenters: Stuart Pope

<https://youtu.be/SXYhMJtH1cw>

TITLE: Evaluation of the safety of lactulose for the treatment of hepatic encephalopathy in patients with decompensated cirrhosis

AUTHORS: Stuart Pope; Alley Killian; Peter Moran; Ram Subramanian

OBJECTIVE: Identify potential safety concerns of lactulose use in patients with acute on chronic liver failure

SELF ASSESSMENT QUESTION: Is lactulose use associated with a higher incidence of ileus in patients with acute on chronic liver failure?

BACKGROUND: Hepatic encephalopathy (HE) is a common complication seen in end stage liver disease, is characterized by a variety of neurological abnormalities, and is associated with poor prognosis. Lactulose is commonly used as first line treatment for HE in cirrhotic patients. However, there is limited, if any, data regarding the safety of lactulose for the treatment of HE in the acute-on-chronic liver failure (ACLF) patient population. Lactulose poses several risks to critically ill patients, including ileus formation, metabolic and electrolyte derangements, and hypovolemia. Thus, this retrospective cohort analysis will compare the safety of lactulose-containing versus non-lactulose-containing medication regimens for the treatment of HE in patients admitted with ACLF.

METHODOLOGY: A retrospective cohort review of adult patients who were admitted to the surgical/transplant ICU at Emory University Hospital with ACLF and received treatment for hepatic encephalopathy. The primary objective for this study is the incidence of gastrointestinal complications. Secondary objectives include metabolic disturbances and ICU/hospital length of stay.

RESULTS: The lactulose-containing group experienced a statistically significant higher rate of GI complications (34% v. 20%, p-value 0.03), likely driven by an increased incidence of ileus formation. Metabolic disturbances were more likely to occur in the non-lactulose-containing group. Patient-specific outcomes such as length of stay and mortality did not differ between groups.

CONCLUSIONS: Our study demonstrated that lactulose is associated with a higher incidence of GI complications in patients who are admitted to an ICU with decompensated cirrhosis. This finding may contribute to practice changes at our institution; however, prospective trials are needed to investigate the causative relationship between lactulose and GI complications in this patient population.

R Mannitol use for moderate to severe intracranial hemorrhage in the emergency department prior to intracranial pressure monitoring: retrospective chart review

Room D

Presenters: Laura Hamaker

TITLE: Mannitol use for moderate to severe intracranial hemorrhage in the emergency department prior to intracranial pressure monitoring: retrospective chart review

AUTHORS: Laura Hamaker, Anna Bush, Maura Hall

OBJECTIVE: Determine if mannitol use in intracranial hemorrhage prior to ICP monitoring in the ED is safe and effective.

SELF ASSESSMENT QUESTION: Which study group had a higher risk of mortality at baseline?

BACKGROUND: Assess the efficacy and safety of mannitol administration in the emergency department (ED) for moderate to severe intracranial hemorrhage prior to intracranial pressure (ICP) monitoring.

METHODOLOGY: Single center, retrospective chart review of patients presenting to the ED with moderate to severe intracranial hemorrhage from Jan 01, 2017 to Oct 31, 2020. Patients were included if they were ≥ 18 years old with a Glasgow Coma Scale (GCS) score < 13 . Patients with an initial GCS score of 3 or who were transferred to another facility were excluded. The primary outcome was improvement in GCS score from initial presentation to discharge. Incidence of extravasation was recorded. Descriptive statistics were used to analyze data.

RESULTS: A total of 61 patients were included in this study with 33 and 28 patients in the mannitol and control group, respectively. Baseline characteristics were similar in both treatment groups with a few exceptions. The presence of midline shifts and intraventricular hemorrhages were higher in the mannitol group predicting a worse prognosis for these patients at baseline. GCS scores improved by 0.8 and 1.3 in the mannitol and control group, respectively. In-hospital mortality was 51.5% in the mannitol group and 42.9% in the control group. Hospital length of stay was longer in the mannitol group by 3 days. There were no reports of extravasation in the mannitol group.

CONCLUSIONS: The mannitol group had less improvement in GCS scores at discharge; however, this group had a higher risk of mortality at baseline. This study was also limited by a small sample size. Further research is needed to determine the efficacy of mannitol in moderate to severe intracranial hemorrhage prior to ICP monitoring.

I Identification of clinical factors that determine empiric antibiotic use in preterm neonates with low risk of early onset sepsis

Room H

Presenters: Kirbie Bostick

TITLE: Identification of clinical factors that determine empiric antibiotic use in preterm neonates at low risk of early onset sepsis

AUTHORS: Kirbie M. Bostick, Kathryn B. Brown, Valana Vannoy, Daniel B. Chastain

OBJECTIVE: Describe clinical factors that characterize preterm infants as low risk of early onset sepsis

SELF ASSESSMENT QUESTION: Which of the following would not classify a preterm infant as low risk of early onset sepsis?

BACKGROUND: Early onset sepsis (EOS) has high morbidity and mortality risk, but presentation of EOS makes it difficult to distinguish symptoms of sepsis from typical problems associated with prematurity. The treatment of EOS in term neonates has well-established guidelines, and clinicians may utilize a validated sepsis risk calculator for making clinical decisions. Unfortunately, while guidelines for the management of EOS exist for pre-term infants (<34 6/7 weeks), they are ambiguous as to the appropriate use of empiric antibiotics in low risk infants, and the sepsis risk calculator cannot be used in this population.

METHODS: This was a single center retrospective observational study. Patients were excluded if they were considered high risk for EOS based on infant/maternal risk factors. Risk factors included intrapartum fever >37.5 °C, administration of intrapartum antibiotics, prolonged or premature rupture of membranes, or chorioamnionitis. Infants were stratified based on administration of antibiotics, and clinical characteristics and demographic information were gathered. Individual variables were analyzed using either Wilcoxon rank sum, chi squared, or fisher's exact test. Predictors of antibiotic use in this population were determined using multivariable-adjusted logistic regression.

RESULTS: In progress

CONCLUSION: In progress

I **Improvement of antibiotic prescribing for outpatient community acquired pneumonia in the emergency department**

Room I

Presenters: Sarah Jesse

TITLE: Improvement of antibiotic prescribing for outpatient community acquired pneumonia in the emergency department

AUTHORS: Sarah Jesse, Patrick Blankenship, Fern Pruss, Lauren Ladd, Madison Iman

OBJECTIVE: Identify potential interventions to improve discharge antibiotic prescribing for outpatient community acquired pneumonia in the emergency department.

SELF ASSESSMENT QUESTION: What are potential interventions that can improve discharge antibiotic prescribing for community acquired pneumonia in the emergency department?

BACKGROUND: The Infectious Diseases Society of America (IDSA) guideline on the treatment of community acquired pneumonia (CAP) was updated in October of 2019. In response to this update, two emergency department-centered interventions were made to facilitate incorporation of the new recommendations into practice. These interventions included targeted, physician-led education, and an ED discharge pathway that was implemented to guide optimal antibiotic selection. This project aims to assess the impact of these interventions on rates of appropriate discharge antimicrobial prescribing for CAP treated in a community hospital emergency department.

METHODOLOGY: In this IRB-approved retrospective chart review, antibiotic prescriptions for adults discharged from the ED with a diagnosis of CAP were analyzed for appropriateness based on the 2019 IDSA CAP guidelines. Those discharged between November 1st and December 1st, 2019 comprised the pre-intervention cohort, and patients discharged January 1st to February 1st, 2020, the post-intervention cohort. The primary outcome was to compare the proportion of patients discharged on appropriate antibiotic therapy before and after the intervention period. Proportions of treatment failure and treatment-associated adverse effects (TAAEs) were also compared.

RESULTS: 62 patients were included in the final analysis (19 in the pre- and 43 in the post-intervention group). Antibiotic prescriptions were deemed appropriate in 16% and 30% of cases in the pre- and post-intervention periods respectively [difference 14% (95% CI -0.07 to 0.35) $p=0.17$]. There were no significant differences in treatment failures or adverse events observed.

CONCLUSIONS: Although not statistically significant, provider education combined with a discharge pathway was associated with a 14% increase in appropriate antibiotic prescribing for CAP in the ED.

LINK TO PRESENTATION:

<https://tennessee.zoom.us/rec/share/Kbi82fzwjgnXUfSPwEIM5cK0oLZpzJATTdewXlftsPdtzclg2PyoHroviF1J05vc.EnEz6DtzguRf>

I **Procalcitonin and antibiotic use in patients with coronavirus disease 2019**

Room J

Presenters: Katie McCrory

TITLE: Procalcitonin and antibiotic use in patients with coronavirus disease 2019

AUTHORS: Katie McCrory, Kristen Paciullo, Ronald Tribble, and William Bender

OBJECTIVE: Describe the impact of serum procalcitonin (PCT) levels on antibiotic prescribing patterns in patients with coronavirus disease 2019 (COVID-19).

SELF ASSESSMENT QUESTION: Does PCT assist in determining appropriateness of antibiotic therapy in patients with COVID-19?

BACKGROUND: Current available literature reports rates of bacterial coinfections in patients hospitalized with coronavirus disease 2019 (COVID-19) to be low, however, the majority of these patients receive empiric antibiotics. The purpose of this study was to determine the impact of serum procalcitonin (PCT) levels on the prescribing patterns of antibiotic therapy in patients with COVID-19 at a single-center institution.

METHODOLOGY: A retrospective chart review was performed on patients who were admitted for treatment of COVID-19 during the first and second peaks of the virus (April 1, 2020 to June 30, 2020 and July 1, 2020 to September 30, 2020). The primary outcome analyzed was duration of antibiotic therapy in patients who had the following: no PCT level collected, normal initial PCT level (< 0.5 ng/mL), and elevated initial PCT (≥ 0.5 ng/mL).

RESULTS: Of the 170 patients analyzed, 22% percent ($n=37$) had no PCT level, 62% ($n=106$) had a normal initial PCT, and 16% ($n=27$) had an elevated initial PCT. The average duration of antibiotic therapy was 0.7 days in the group with no PCT, 4.5 days in the group with a normal initial PCT, and 9.4 days in the group with and elevated initial PCT ($p=0.005$). Although not statistically significant, the proportion of patients with positive bacterial cultures in the elevated PCT group was larger compared to the lower PCT group. The negative predictive value of PCT for this data set was 82.1%.

CONCLUSIONS: Serum PCT had a significant impact on antibiotic prescribing during the second peak of COVID-19 at this institution. The high negative predictive value seen emphasized that PCT was helpful in clinical decision-making.

VIDEO LINK: https://youtu.be/keGaa_6yjxE

N The Impact of CGRP inhibitors on patient reported monthly migraine days at a safety-net, academic medical center Room F

Presenters: Millad J Sobhanian

TITLE: The Impact of CGRP inhibitors on patient reported monthly migraine days at a safety-net, academic medical center

AUTHORS: Millad J Sobhanian, Jessica K Ringler, Amy Perez, Olivia Morgan

OBJECTIVE: Evaluate the impact of calcitonin gene related peptide (CGRP) inhibitors in the real world setting

SELF ASSESSMENT QUESTION: What is a common characteristic of responders to CGRP inhibitors?

BACKGROUND: CGRP inhibitors show promising efficacy and safety for migraines based on clinical studies. At our institution a clinical pharmacist works with patients and providers to educate and improve access to these therapies. Data for use is limited to structured clinical trials. The purpose of this project is to assess the impact of these agents in the 'real-world setting' and evaluate the role of a clinical pharmacist on outcomes.

METHODOLOGY: This is a single-center, retrospective chart review of patients initiated on a CGRP inhibitor between 7/1/2019 to 4/31/2020 receiving at least a single dose of therapy with any documented follow-up within 6 months after initiation. Our primary outcome was the reduction in monthly migraine days (MMD) pre and post CGRP inhibitor initiation. We also looked at the distribution and characteristics of responders (defined as >50% reduction in MMD from baseline) and non-responders.

RESULTS: We included 46 patients in our analysis. A majority of patients were prescribed erenumab (89%) with 61% receiving clinical pharmacy services. There was a significant reduction in mean MMD of 7 days ($p < 0.01$) after therapy initiation with 52% of patients defined as responders. In the responders group there was a significantly higher number of patients receiving pharmacist assistance and a non-significant trend towards more responders using rescue triptan therapy. Adverse effects occurred in 5 patients, with 4 resulting in discontinuation of therapy.

CONCLUSIONS: CGRP inhibitors are safe and effective in our patient population. Additionally, clinical pharmacists can have a significant impact on patient outcomes by improving access and educating patients on proper use. Larger studies are needed to further characterize responders to therapy and guide initiation of CGRP inhibitors.

Presentation link: https://drive.google.com/file/d/1E_siY1SJ-ewi4AnjE4U9_g40P_hrUXCL/view?usp=sharing

O Real world analysis of tumor lysis syndrome in patients started on venetoclax combination for acute myeloid leukemia Room A

Presenters: Karin Abernathy

TITLE: Real world analysis of tumor lysis syndrome in patients started on venetoclax combination for acute myeloid leukemia

AUTHORS: Karin Abernathy, Matt Perciavalle, Katie Gatwood, Michael Byrne, Matt Zakhari

OBJECTIVE: Describe the risk of tumor lysis syndrome in AML patients started on venetoclax combination

SELF ASSESSMENT QUESTION: True or false. The majority of patients initiated on venetoclax combination for AML will experience TLS.

BACKGROUND: Venetoclax is an oral antineoplastic agent utilized in combination with low dose cytarabine (LDAC) or a hypomethylating agent (HMA) for treatment of acute myeloid leukemia (AML). Clinical trials report a risk of developing tumor lysis syndrome (TLS) during the venetoclax dose ramp-up. The purpose of this study was to evaluate the risk of TLS in AML patients in a large population outside the context of a tightly controlled clinical trial and to evaluate the incidence of hospital-acquired complications during the inpatient ramp-up admission.

METHODOLOGY: We performed a retrospective study of adults with AML receiving at least one dose of venetoclax with a HMA or LDAC. The primary outcome was the incidence of TLS. Secondary outcomes included risk factors for development of TLS, length of admission, and incidence of hospital-acquired complications.

RESULTS: Of 128 patients evaluated, 113 were included. The incidence of TLS was 8.8% (10 patients). All were laboratory TLS; one with hyperuricemia, 9 with hypocalcemia (median 6.8mg/dL, range 5-7), and 10 with hyperphosphatemia (median 5.3mg/dL, range 4.5-6). 6 patients received intervention with sevelamer. TLS occurred at a median of day 2. No clinical TLS occurred. Baseline white blood cells (WBC) were greater than 25,000/mm³ before initiation in 14.2% of patients with 18.8% (3) of those experiencing TLS. 3 of 5 patients considered high-risk for development experienced TLS. Length of admission and hospital-acquired complications analyses are ongoing.

CONCLUSIONS: TLS was uncommon in this study. The majority of patients with TLS had minor abnormalities in phosphorus and calcium that were non-severe. WBC may be an indicator of risk and TLS incidence. Patients with elevated WBC should be admitted for monitoring while it may be feasible to otherwise initiate venetoclax in the outpatient setting. Further analysis is ongoing.

Presenters: Gaybrielle Moore

TITLE: Safety of High-Intensity Atorvastatin with Sofosbuvir/Velpatasvir during Hepatitis C Virus Treatment

AUTHORS: Gaybrielle Moore, Ryan Ford, Katherine Fuller

OBJECTIVE: Describe the clinical impact of concomitant use of sofosbuvir/velpatasvir and high-intensity atorvastatin

SELF ASSESSMENT QUESTION: True or False. Concomitant use of high-intensity atorvastatin and sofosbuvir/velpatasvir resulted in clinically significant statin-related ADRs and statin discontinuations.

BACKGROUND: Sofosbuvir/velpatasvir increases the concentration of atorvastatin, and patients should be monitored for statin-related adverse drug reactions (ADRs) per the package insert. Clinically, providers often decrease atorvastatin to ≤ 20 mg to minimize the risk of ADRs while on hepatitis C virus (HCV) treatment. This study evaluated the clinical effects of high-intensity atorvastatin and sofosbuvir/velpatasvir coadministration.

METHODOLOGY: Patients ≥ 18 years of age, prescribed sofosbuvir/velpatasvir by an Emory hepatology provider between September 1, 2016, and August 31, 2020, and concurrently taking atorvastatin 40 mg or 80 mg were eligible for inclusion in this IRB-approved chart review. Patients were excluded if sofosbuvir/velpatasvir was prescribed by an external provider or never started. The primary outcome was the incidence of statin-associated ADRs while on HCV treatment. Secondary outcomes included the rate of atorvastatin discontinuation due to ADRs, incidence of sofosbuvir/velpatasvir-related ADRs, rates of sustained virologic response ≥ 12 weeks (SVR12) after treatment end, and mean number of drug interactions per patient.

RESULTS: Seventeen patients were included. Of these, 76.5% had history of an atherosclerotic cardiovascular disease (ASCVD) event and 23.5% had hyperlipidemia. No statin-related ADRs or statin discontinuations occurred.

The mean number of drug interactions per patient was 1.9.

CONCLUSIONS: Concomitant use of high-intensity atorvastatin and sofosbuvir/velpatasvir may be considered given the results of this study. Pharmacists are uniquely positioned to evaluate medication appropriateness and manage drug interactions.

Link to presentation: <https://youtu.be/Z2ULBFEqAaQ>

Presenters: Buzz Custer

TITLE: Implementation of MTM Services within a Community Pharmacy Associated with a Large Academic Medical Center

AUTHORS: Buzz Custer, Amanda D'Ostroph, Kristy Kenney, B. Kyle Hansen, Regina Schomberg, Andrea Luebchow, Kathy Bricker

OBJECTIVE: Identify barriers to completion of MTM opportunities in a health system community-based pharmacy.

SELF ASSESSMENT QUESTION: What did the study identify as barriers to completion of MTM opportunities in a health system community-based pharmacy?

BACKGROUND: Evaluate the implementation of Medication Therapy Management (MTM) services within a large health system community-based pharmacy.

METHODOLOGY: This IRB-approved study was conducted at one of nine community pharmacy locations owned and operated by Wake Forest Baptist Health. MTM services were implemented in this location through workflow adjustments and use of a contracted MTM platform. The platform identifies patients appropriate for potential pharmacist intervention. These can include a comprehensive medication review (CMR) or targeted intervention program (TIP), which can include adherence assessment, patient education, medication assessment, or potential refill opportunity.

MTM service feasibility was evaluated by the number of completed MTM opportunities within the MTM platform.

Pharmacists documented barriers to completing MTM opportunities (e.g., time, proper training, patient availability, etc.) were documented after each encounter.

RESULTS: The study included 22 MTM opportunities. Of the 22 attempted, 15 were completed successfully (i.e., intervention accepted). Eight of the opportunities were CMRs and 14 were TIPs. Successful completion was achieved in 75% of the CMRs and 60% of TIPs. There were 20 post-opportunity barrier surveys completed. A total of \$466 was associated with the 22 MTM opportunities with CMRs generating the most revenue.

CONCLUSIONS: MTM services were successfully implemented within typical workflow of a community pharmacy associated with a large academic medical center. TIPs were the most common MTM opportunity attempted; however, CMRs had a greater rate of successful completion. Revenue generated was greatest amongst CMRs. Imprecise documentation of time spent precluded a return-on-investment analysis. The most common barriers identified were related to patient lack of understanding for MTM intervention and pharmacist training in certain clinical areas. <https://youtu.be/dexjWdCIXBg>

Presenters: Chelsea Jennings

Video Link: <https://youtu.be/VlzOZmeMFUQ>

TITLE: Evaluation of Heparin Dosing in the Setting of Impella® Percutaneous Ventricular Assist Devices

AUTHORS: Chelsea Jennings, Tyler Chanas

OBJECTIVE: Describe anticoagulation practices observed in patients with Impella devices.

SELF ASSESSMENT QUESTION: How is heparin used in patients with Impella devices to achieve therapeutic ACT targets?

BACKGROUND: Anticoagulation in patients with Impella devices is complex and wide variation in clinical practice has been observed. Both a heparin based purge solution and systemic heparin are commonly seen in practice though primary literature is limited in characterizing their use. The purpose of this study was to evaluate heparin use among patients with Impella devices in an effort to guide anticoagulation practices.

METHODOLOGY: This single center, retrospective, observational review, included adult patients admitted to Vidant Medical Center between July 1, 2015 and June 30, 2020 who received a left or right sided Impella device for at least 12 hours, and unfractionated heparin with monitoring based on ACT values. Patients were excluded if they had any contraindication to heparin use. The primary endpoint was cumulative heparin rate at the time of initial therapeutic ACT (defined as 160-180s). Secondary endpoints included time to therapeutic ACT, time from Impella start to the addition of systemic heparin, initial, maximum, and minimum ACT values in patients not receiving systemic heparin, and initial rate of systemic heparin.

RESULTS: Of 118 patients identified for analysis, 52 met inclusion criteria. Primary reasons for exclusion were Impella placement less than 12 hours and heparin monitoring based on aPTT values. At time of initial therapeutic ACT a median total heparin dose of 617.5 IU/hr was found (IQR 382.5 - 841.3). Secondary endpoint results were as follows: median time to goal ACT (hours) 3.9 (IQR 1.1 - 6.4), median time to addition of systemic heparin (hours) 6.8 (IQR 2.9 - 10.6), median values for initial/maximum/minimum ACT while not on systemic heparin (seconds) 202/224/150 (IQR 180 - 235.5/191.5 - 320/138 - 160).

CONCLUSIONS: Findings from this study successfully characterized anticoagulation practices with heparin at a single institution over an extended time period. There was found to be a significant patient population that required the addition of systemic heparin to reach goal ACT targets. Wide variability in the amount of heparin required to reach goal ACT was seen and ACT targets were often met prior to the initiation of systemic heparin though not often sustained. Given current literature deficits in this clinical area further study is warranted.

Presenters: Sydney FINDER

TITLE: Five versus ten units of intravenous insulin for hyperkalemia in patients with moderate renal dysfunction

AUTHORS: Sydney FINDER, Linda McLaughlin, Ryan C. Dillon

OBJECTIVE: Describe the relative incidence of hypoglycemia and mean change in serum potassium when using 5 versus 10 units of insulin for hyperkalemia in patients with moderate renal dysfunction

SELF ASSESSMENT QUESTION: (True/False): Administration of 10 units versus 5 units of IV insulin for hyperkalemia in patients with moderate renal dysfunction is associated with no difference in the incidence of hypoglycemia, but has greater potassium lowering effects

BACKGROUND: Initial treatment of hyperkalemia often includes an attempt to shift potassium intracellularly with 10 units of intravenous (IV) insulin. Since insulin is renally cleared, giving 10 units of IV insulin has been shown to cause hypoglycemia in patients with renal dysfunction. While 5 units of IV insulin has been widely accepted for treatment of hyperkalemia in those with end stage renal dysfunction (eGFR < 15 mL/min/m²), there is little data for patients with moderate renal dysfunction (eGFR 15-59 mL/min/m²). The purpose of this study was to examine the incidence of hypoglycemia and mean change in serum potassium in patients with moderate renal dysfunction receiving 5 versus 10 units of IV insulin for treatment of hyperkalemia.

METHODOLOGY: This was a single center, retrospective study conducted at Vanderbilt University Medical Center. Adult patients with moderate renal dysfunction who received IV insulin for treatment of hyperkalemia were included. Patients were grouped based on whether they received 5 or 10 units of IV insulin and were excluded if they had dialysis within 6 hours of insulin administration, did not have a repeat blood glucose value within 6 hours of the initial BMP, or had only hemolyzed potassium lab results. The primary outcome was the rate of hypoglycemia, defined as a blood glucose of ≤70 mg/dL. Secondary outcomes included rate of severe hypoglycemia and relative potassium lowering effects.

RESULTS: In progress

CONCLUSIONS: In progress

<https://www.youtube.com/watch?v=eZ2Wyx17y8>

Presenters: John Brannon

TITLE: VTE prophylaxis strategies in COVID-19 positive ICU patients

AUTHORS: John Brannon, Tonya Thomas, Michelle Wilcox

OBJECTIVE: Compare the differences in the incidence of VTE and major bleeding in patients who received high intensity anticoagulation prophylaxis vs standard prophylaxis.

SELF ASSESSMENT QUESTION: How did patient outcomes compare when using high intensity or standard dosing to prophylactically anticoagulant patients.

BACKGROUND: The purpose of this study is to determine which anticoagulation prophylaxis dosing strategies are associated with less venous thromboembolisms (VTE) and major bleeding in COVID-19 ICU patients.

METHODOLOGY: This study is a retrospective chart review of adult patients who were treated for COVID-19 in the intensive care units at Ascension Saint Thomas West, Midtown, and Rutherford hospitals between March 1, 2020 and December 31, 2020. Patients must have been treated with either high intensity prophylactic anticoagulation or standard prophylactic anticoagulation. Patients were excluded if any of the following occurred less than 24 hours after admission to the ICU: transfer out of the ICU, confirmed VTE, or patient expired.

RESULTS: One hundred and twenty patients were included in the study. 62 patients received high intensity prophylaxis and 58 received standard prophylaxis. Between the high intensity and standard prophylaxis there was no statistical difference in VTE (6% vs 5% $p=1$) or major bleeding events (8% vs 5%, $p=0.718$). There was also no statistical difference in mortality, percentage of patients requiring intubation, survivor length of stay, or ICU length of stay.

CONCLUSIONS: There was no statistically significant difference in the rate of VTE or major bleeding between patients who received high intensity anticoagulation prophylaxis and those who received standard prophylaxis.

I **Evaluation of FilmArray® Blood Culture Identification (BCID) and TheraDoc® Utilization at a VA Health Care System (HCS)**

Presenters: Madison Treadway

TITLE: Evaluation of FilmArray® Blood Culture Identification (BCID) and TheraDoc® Utilization at a VA Health Care System (HCS)

AUTHORS: Madison Treadway, Bailey Guest, David Rudd, and Kelly Sugarman

OBJECTIVE: To evaluate FilmArray® BCID and TheraDoc® utilization at the Salisbury VA HCS and its impact on the time to initiation of appropriate antimicrobial therapy.

SELF ASSESSMENT QUESTION: How did BCID and TheraDoc® utilization affect time to appropriate antimicrobial therapy?

BACKGROUND: Prompt initiation of appropriate antimicrobial therapy is critical in patients with bacteremia. The Salisbury VA HCS uses FilmArray® BCID, which identifies 24 bacterial and fungal pathogens including 3 resistance genes within approximately one hour with more than 90% accuracy, and TheraDoc®, which has antimicrobial stewardship capabilities, to expedite antimicrobial decisions. The purpose of this study is to evaluate the timeliness of appropriate antimicrobial therapy initiation based on positive BCID results at the Salisbury VA HCS.

METHODOLOGY: This was a retrospective, quality-improvement chart review. Subjects eligible to be included were Veterans at the Salisbury VA HCS with positive BCID results from 5/1/18-7/31/20 from TheraDoc®. The primary objective was identifying average time for appropriate antimicrobial therapy to be initiated on Veterans without or not on appropriate antimicrobial therapy from the time of BCID positivity. Key secondary objectives included identifying average time to de-escalation and contributors to delays of antimicrobial initiation.

RESULTS: 75 Veterans were included in the study with average age of the sample being 68 years. Of those included, 64 (85%) were on appropriate antimicrobial therapy and 11 (15%) were on inappropriate or no therapy at the time of BCID results. The average time to appropriate therapy was 22 hours and 50 minutes, with time to provider order entry being the largest contributor. If BCID results occurred during business hours, time to appropriate therapy was nearly 30 hours shorter. The average time to de-escalation for those on appropriate therapy was 44 hours and 35 minutes.

CONCLUSIONS: Utilization of FilmArray® BCID and TheraDoc® can reduce time to appropriate antimicrobial therapy; however, a larger sample size needs to be studied.

Video Link

I **Predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving outpatient parenteral antibiotic therapy** Room H

Presenters: Jenna Ingram

TITLE: Predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving outpatient parenteral antibiotic therapy

AUTHORS: Jenna Ingram, Caroline Derrick, P. Brandon Bookstaver

OBJECTIVE: List predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving OPAT.

SELF ASSESSMENT QUESTION: What factors are associated with non-therapeutic vancomycin concentrations post-discharge in patients receiving OPAT?

BACKGROUND: Patients receiving outpatient parenteral antimicrobial therapy (OPAT) with vancomycin often have non-therapeutic drug concentrations at initial follow-up. The proportion of patients with non-therapeutic vancomycin concentrations at initial follow-up were assessed and predictors for non-therapeutic concentrations post-discharge in patients receiving OPAT were analyzed.

METHODOLOGY: This was a retrospective, cohort study among patients ≥ 18 years of age discharged from a Prisma Health Midlands hospital between January 2017 and October 2020 on IV vancomycin for ≥ 1 week. Patients on dialysis or those lost to follow-up were excluded. Non-therapeutic vancomycin concentrations were defined as an AUC/MIC outside of target range (400-600 mg/h*L). Univariate analysis and multivariable regression analysis were used to determine factors associated with initial non-therapeutic vancomycin concentrations.

RESULTS: A total of 45 patients were included in this IRB-approved study, with 19 (42%) patients in the therapeutic group and 26 (58%) in the non-therapeutic group. Of the non-therapeutic patients, 15 (58%) were supratherapeutic at initial follow-up. Moderate to severe renal disease was associated with non-therapeutic concentrations (OR = 5.33, $p = 0.135$). Patients with non-therapeutic concentrations had their vancomycin dose adjusted an average of 1 day closer to discharge than those with therapeutic concentrations (1.5 vs. 2.4, $p = 0.192$). Those with non-therapeutic concentrations were more likely to experience emergency department (ED) visits (OR = 2.59, $p = 0.203$) and acute kidney injuries (AKI) (OR = 2.67, $p = 0.399$) with both of these being more common amongst the supratherapeutic group.

CONCLUSIONS: Non-therapeutic vancomycin concentrations at initial outpatient follow-up are common. While there were no statistically significant predictors identified, patients with non-therapeutic concentrations were more likely to experience ED visits and AKI. Transitions of care are important for all patients receiving vancomycin. Further prospective investigation is warranted. <https://youtu.be/GMUVXDQKFpl>

I **The Use of Empiric Antibiotics in COVID-19 Patients** Room J

Presenters: Alexia Greene

TITLE: The Use of Empiric Antibiotics in COVID-19 Patients

AUTHORS: Alexia Greene, Christina Thurber, Heather Gibson, Andrew Kessell

OBJECTIVE: Evaluate the antimicrobial therapy used in COVID-19 patients admitted to a community hospital

SELF ASSESSMENT QUESTION: Which of the following empiric therapies would be considered in a COVID-19 positive patient with a procalcitonin of 0.5?

BACKGROUND: Severe acute respiratory syndrome coronavirus 2, known as SARS-CoV2, is a virus that caused an outbreak of a novel disease called coronavirus disease 19 (COVID-19). After contracting the disease, through respiratory droplets, patients present with varying severity from severe respiratory symptoms to asymptomatic. For those presenting to the hospital with respiratory symptoms, antimicrobial therapy is a common treatment modality. The clinical question is whether these respiratory symptoms are also indicative of a bacterial pneumonia co-infection and require antimicrobial therapy. Current literature suggests that empiric antimicrobial therapy is started in COVID-19 patients despite reports of co-infections occurring in only 2-46% of them. The objective of this study is to evaluate the antimicrobial therapy used in COVID-19 patients admitted to a community hospital.

METHODOLOGY: A retrospective observational study will be conducted to evaluate the use of antibiotic therapy and length of therapy in COVID-19 patients presenting to Moore Regional Hospital between April 1, 2020 and August 31, 2020. Patients will be included if they are: 18 years or older, diagnosed with COVID-19, and received empiric antibiotic therapy within 2 days of admission. Patient's demographics, severity of disease at admission, cultures, procalcitonin level, oxygen saturation, temperature, administered antibiotic regimen, and length of antibiotic therapy will be obtained from the electronic medical record. Patients who were less than 18 years old and pregnant will be excluded.

RESULTS: In progress

CONCLUSIONS: In progress

L UTILIZING ENOXAPARIN FOR PROPHYLACTIC VERSUS THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH COVID-19 Room E

Presenters: Miranda McGee

TITLE: UTILIZING ENOXAPARIN FOR PROPHYLACTIC VERSUS THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH COVID-19

AUTHORS: Miranda McGee, Megan Lail, Ann Maxwell, Kelsey Shamblen

OBJECTIVE: Determine the safety of enoxaparin prophylactic versus therapeutic dosing in patients with COVID-19.

SELF ASSESSMENT QUESTION: In what patient population(s) would prophylactic dose enoxaparin be more beneficial than therapeutic dose enoxaparin?

BACKGROUND: Hypercoagulation in patients with COVID-19 has been shown to increase mortality and lead to a greater severity of illness. The ideal anticoagulation regimen for venous thromboembolism (VTE) prophylaxis is not yet clear. The purpose of this study was to evaluate the safety and efficacy of prophylactic versus therapeutic dose enoxaparin in patients with COVID-19.

METHODOLOGY: This study was a retrospective cohort study including patients 18 years and older with COVID-19 who received enoxaparin during their admission. Patients were excluded if they were pregnant or required anticoagulation at baseline. Patients were considered to have received prophylactic dose enoxaparin if their highest anti-Xa level during admission was less than 0.6 int'l units/mL and considered to have received therapeutic dose enoxaparin if their highest anti-Xa level was 0.6 int'l units/mL or greater. The primary endpoint was the incidence of major or minor bleeds. The secondary endpoints were incidence of VTE and the duration and dose of enoxaparin therapy prior to development of bleeding or VTE.

RESULTS: In progress

CONCLUSIONS: In progress

O Impact of prophylactic intrathecal chemotherapy on central nervous system relapse in patients with AIDS-Related B-Cell Lymphoma Room A

Presenters: Mary Haley Ellis

TITLE: Impact of prophylactic intrathecal chemotherapy on central nervous system relapse in patients with AIDS-Related B-Cell lymphoma

AUTHORS: Mary Ellis, Joseph Torrisi, Julianna Cebollero, Jennifer LaFollette, Marjorie Curry

OBJECTIVE: Describe the role of IT chemotherapy in the treatment of patients with ARLs

SELF ASSESSMENT QUESTION: What treatment should be added to systemic chemotherapy to prevent CNS relapse in ARLs?

BACKGROUND: Evaluate the impact of intrathecal (IT) chemoprophylaxis in patients with AIDS-related lymphomas (ARLs) at a large urban academic medical center.

METHODOLOGY: A single-center, retrospective, medical record review was conducted for patients diagnosed with an ARL between May 2013 and December 2019 who received at least one cycle of first-line chemotherapy (EPOCH, HyperCVAD or CHOP with or without rituximab). Patients were excluded if they had Central nervous system (CNS) disease at diagnosis, received only pre-phase chemotherapy or CNS involvement was unable to be determined.

RESULTS: Of the 39 patients included, 56% were black males with a median age of 40 years. The primary diagnoses were diffuse large B-cell lymphoma (DLBCL) 51% (n=20), Burkitt lymphoma (BL) 31% (n=12), and plasmablastic lymphoma 18% (n=7) and 64% (n=25) had high-risk NHL at baseline. R-EPOCH (n=15) and R-HyperCVAD (n=11) were the most common regimens administered. Two patients (5%) had CNS relapse. One patient had plasmablastic lymphoma, received 4 doses of IT chemoprophylaxis and had CNS relapse 161 days after diagnosis. The other patient had BL, did not receive IT chemoprophylaxis and had CNS relapse 126 days after diagnosis. IT chemoprophylaxis was administered to 77% of patients (n=30/39). Of those who received IT chemoprophylaxis, 53% (n=16/30) received at least 4 doses and 67% (n=20/30) received alternating doses of cytarabine and methotrexate.

CONCLUSIONS: At our institution, 5% of patients experienced CNS relapse which is comparable to previously published data in patients with AIDS-related B-Cell lymphomas. Consistent with guideline recommendations, the majority of patients received at least 4 alternating doses of cytarabine and methotrexate.

Video Link: <https://drive.google.com/file/d/1ewv7aEfebYmCu7seb6M1gRtjOsA4fCl4/view?usp=sharing>

Presenters: Kayla Evans

TITLE: Impact of tacrolimus trough variability on acute rejection in lung transplant recipients

AUTHORS: Kayla Evans, Kristi Beermann, Holly Berry, Hui-Jie Lee, Hakim Azfar Ali

OBJECTIVE: Describe the importance of tacrolimus variability in lung transplant recipients

SELF ASSESSMENT QUESTION: Tacrolimus is associated with significant inter- and intra-patient pharmacokinetic variability: true or false

BACKGROUND: Acute rejection (AR) is a risk factor for the development of chronic lung allograft dysfunction (CLAD), the leading cause of morbidity and mortality in lung transplant (LT) recipients. Prevention of AR with a calcineurin inhibitor, cell cycle inhibitor, and corticosteroid is considered the standard of care following LT. Emerging data in the kidney, liver, and heart transplant literature suggest an association between high intra-patient tacrolimus variability and acute and chronic rejection. This study aimed to evaluate the impact of high tacrolimus trough variability, using coefficient of variation, on acute cellular rejection in the first year following LT.

METHODOLOGY: This is a retrospective study of adults who received a primary LT at Duke University Hospital between January 2014 and September 2018. Patients received basiliximab induction and survived with a functioning graft for at least 12 months. Patients who received multi-organ transplant, antithymocyte globulin induction, belatacept, or desensitization therapies were excluded. The primary endpoint is total acute rejection score (TRS), defined as the sum of biopsy scores within 12 months post-transplant where A0=0, A1=1, A2=2, A3=3, A4=4 and B=1 only if A=0. Secondary endpoints include development of donor-specific antibodies, antibody-mediated rejection, CLAD, graft loss and death within 24 months post-transplant.

RESULTS: 231 patients were included. The average age was 55 years, 67.1% were male, 90.9% were white, 57.1% had underlying restrictive lung disease, and 81.8% received a bilateral lung transplantation.

CONCLUSIONS: The average patient was a 55 year-old white male with underlying restrictive lung disease receiving bilateral lung transplantation.

Presenters: Ann Truong

TITLE: Impact of a Pharmacist-Led COPD Service at a Hospital-Based, Indigent-Care Clinic

AUTHORS: Ann Truong, Jennifer Hayes, Lori Hornsby

OBJECTIVE: Evaluate the impact of a pharmacist-led COPD service on optimizing guideline-directed pharmacotherapy, adherence, medication costs, and proper inhaler technique in addition to reducing COPD symptoms and improving overall quality of life

SELF ASSESSMENT QUESTION: Does having a pharmacist-led COPD service at a hospital-based, indigent care clinic improve patient outcomes and quality of life?

BACKGROUND: Chronic Obstructive Pulmonary Disease (COPD) affects millions of Americans and is currently the third leading cause of death in the United States with estimated healthcare costs of approximately 50 billion dollars annually. Many patients with COPD do not receive guideline-recommended pharmacotherapy and/or do not utilize proper inhaler technique, which leads to more frequent hospitalizations and greater morbidity and mortality. Indigent patients are at higher risk due to increased exposure to COPD risk factors. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines recommend an interdisciplinary approach to managing COPD, and pharmacists have demonstrated positive outcomes in COPD management due to their unique skillset and pharmacotherapy expertise. In order to provide more focused COPD management at a hospital-based, indigent care clinic, a pharmacist-led COPD service will be established. Impact on COPD-related outcomes will be evaluated.

METHODOLOGY: The primary outcome is the change in percentage of patients on guideline-recommended pharmacotherapy pre- and post-intervention. Secondary outcomes include change in smoking and vaccination status, inhaler technique, adherence, symptom scores, exacerbations, and hospitalizations as well as cost reduction and number of pharmacist interventions. After obtaining informed consent, patients are initially scheduled for an in-person appointment followed by 2-4-week follow-up visits. The components of the primary and secondary outcomes are assessed at each visit.

RESULTS: In progress

CONCLUSIONS: In progress

B Outcomes Associated with Direct Oral Anticoagulant Use in Patients with Non-Valvular Atrial Fibrillation and Obesity

Room K

*Presenters: Jamie Coates***TITLE:** Outcomes Associated with Direct Oral Anticoagulant Use in Patients with Non-Valvular Atrial Fibrillation and Obesity**AUTHORS:** Jamie Coates, Emily Bitton, Ashley Hendje, Tom Delate, Kari Olson, Sara Ly**OBJECTIVE:** Compare outcomes of patients with obesity and non-valvular atrial fibrillation (NVAF) who received direct oral anticoagulant (DOAC) therapy to those not obese.**SELF-ASSESSMENT:** Why do current guidelines not recommend DOAC use in patients weighing >120kg?**BACKGROUND:** DOACs have been compared to warfarin in several trials in patients with NVAF and generally found to be safer and more efficacious. Patients with obesity were mostly excluded from these studies.**METHODS:** This was a retrospective, matched, longitudinal, multi-site, cohort study. Patients were included if between September 1, 2016 and June 30, 2019 they were ≥ 18 years of age with a diagnosis of NVAF, received a DOAC (index date = date of dispensing), and had at least 180 days of health plan membership prior to the index date. Patients with and without obesity were matched up to 1:6 on age, sex, and CHA2DS2-VASc score. Obesity was defined as >120 kg using the weight recorded closest to the index date. Study data were extracted from administrative databases and through manual chart reviews. The primary outcome was a composite of systemic embolism, ischemic stroke, major bleeding, and all-cause mortality. Patients were followed until the first occurrence of primary outcome, termination of health plan membership, switch to different/stopped anticoagulant, or June 30, 2020.**RESULTS:** A total of 777 patients with obesity were matched to 3522 patients without obesity, all taking dabigatran. The obese group tended to be younger with a higher burden of chronic disease. Patients with obesity experienced a higher rate of gastrointestinal bleeding (HR 1.44, 95% CI 1.01-2.05).**CONCLUSION:** NVAF patients with obesity on dabigatran had an increased incidence of gastrointestinal bleeding. However, there was no statistically significant difference in the composite outcome, which helps support the use of dabigatran in patients with obesity.**PRESENTATION:** <https://youtu.be/Axt0aEz3vLU>**Y IMPACT OF IMPLEMENTATION OF A TRIAGE PHARMACIST ROLE ON CLINICAL INTERVENTION ACTIVITIES IN A SPECIALTY PHARMACY CALL CENTER**

Room G

*Presenters: Christine Barthen***TITLE:** IMPACT OF IMPLEMENTATION OF A TRIAGE PHARMACIST ROLE ON CLINICAL INTERVENTION ACTIVITIES IN A SPECIALTY PHARMACY CALL CENTER**AUTHORS:** Christine Barthen, Jen Young, Kathy Bricker, Helen Northrup, Kyle Hansen**OBJECTIVE:** Describe the impact of a triage pharmacist role on clinical intervention activities in a specialty pharmacy call center.**SELF ASSESSMENT QUESTION:** What is one way the triage pharmacist role impacted patient care?**BACKGROUND:** Assess the impact of a triage pharmacist role on clinical intervention activities within a specialty call center. A clinical intervention activity is defined as a situation that requires escalation to a pharmacist.**METHODOLOGY:** A single-center retrospective chart review of all clinical intervention activities completed in the Specialty Pharmacy Call Center from May 1, 2018 to April 30, 2019 and from July 1, 2019 to June 30, 2020, before and after the implementation of the triage pharmacist role. Therigy Insights (Orlando, FL) reporting was used to collect data including date clinical intervention activity was opened, date clinical intervention activity was completed, therapeutic category, clinical intervention category, Patient Care Plan activities, and patients discontinued from specialty pharmacy services. The primary endpoint of this study was time to clinical intervention completion.**RESULTS:** A total of 1521 (391 pre-triage and 1130 post-triage) clinical intervention activities were included in this IRB-approved study. Average time to clinical intervention completion decreased by 1.1 days ($p=0.002$). Time to first outreach attempt decreased by 0.68 days ($p<0.05$). Patient Care Plans created and acceptance of clinical interventions remained approximately the same ($p=0.608$ and $p=0.937$, respectively). There was a significant effect on time to clinical intervention completion among therapeutic categories, clinical intervention categories, and clinical outcome categories ($p=0.011$, $p=0.012$, $p<0.05$, respectively). After implementation of the triage pharmacist role, discontinuation from specialty pharmacy services increased ($p=0.004$). <https://youtu.be/yNKEb3dkQXo>

R Comparison of Diltiazem Dosing on Successful Rate Control or Cardioversion in the Emergency Department

Room C

Presenters: Casey Boyer

TITLE: Comparison of Diltiazem Dosing on Successful Rate Control or Cardioversion in the Emergency Department

AUTHORS: Casey Boyer, Kara Fifer, John Patka, Michelle Lall

OBJECTIVE: Identify optimal dosing of diltiazem in acute supraventricular arrhythmias.

SELF ASSESSMENT QUESTION: What are the pitfalls of inappropriate diltiazem dosing?

BACKGROUND: Atrial fibrillation guidelines recommend non-dihydropyridine calcium channel blockers as first line agents in ventricular rate control. However, diltiazem is often prescribed at doses less than the FDA-approved labeling of 0.25 mg/kg, potentially exposing patients to additional pharmacological agents. The aim of this study was to compare the safety and efficacy of diltiazem doses administered in the emergency department (ED) for supraventricular arrhythmias.

METHODOLOGY: A retrospective chart review was performed in adult patients receiving an initial intravenous diltiazem bolus in the ED for an acute supraventricular arrhythmia with a heart rate of at least 120 beats per minute. Patients were excluded if they received diltiazem for an indication other than supraventricular arrhythmia or received any rate or rhythm controlling agents prior to diltiazem. Patients were stratified to an on-label dosing group (at least 0.2 mg/kg) and off-label dosing group (<0.2 mg/kg). The primary outcome was treatment response within 30 minutes as a composite of rate control (heart rate rate of less than 100 beats per minute or at least 20% reduction from baseline) and cardioversion (resultant normal sinus rhythm).

RESULTS: A total of 85 patients were included in the analysis. Seventy-two percent of patients (26/36) in the on-label dosing group met the primary outcome compared to 57% of patients (28/49) in the off-label dosing group. The rate of hypotension was similar between groups.

<https://www.youtube.com/watch?v=6j3LbfClrwl>

R Evaluation of compliance with guideline recommendations in adult patients with diabetic ketoacidosis and hyperosmolar hyperglycemic state management in a rural, primary care hospital system

Room D

Presenters: Fay Creathorn

TITLE: Evaluation of compliance with guideline recommendations in adult patients with diabetic ketoacidosis and hyperosmolar hyperglycemic state management in a rural, primary care hospital system

AUTHORS: Fay Creathorn, PharmD; John Norris, PharmD, BCPS, BCCCP; Matt Bamber, PharmD, MBA, BCCCP

OBJECTIVE: In order to adequately manage these conditions, treatment regimens must be provided in a timely manner. Recognizing the difference between the two hyperglycemic classifications and how to treat each condition is crucial to optimizing patient outcomes. Once a patient has been diagnosed and a regimen has been initiated, it is important to closely monitor and adjust treatment to meet and maintain the specific parameters. Ensuring transitions of medical care between the emergency department, intensive care units, and medical floors, is essential in patients meeting therapeutic goals and reducing healthcare burden. The objective of this study is to evaluate the adherence to guideline metrics of our facility.

SELF ASSESSMENT QUESTION: How closely does our hospital adhere to guideline recommendations when treating DKA and HHS patients?

BACKGROUND: The most recent American Diabetes Association (ADA) guidelines include treatment strategies for diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS), however, they were published in 2009. Since then, newer primary literature and review articles have made further recommendations on optimizing outcomes and reducing the healthcare burden in a patient presenting with one of the two hyperglycemic episodes. In the United States, emergency department (ED) admissions for DKA and HHS increased 6.3% and ~1%, respectively, per year from 2009 through 2014. The rise in incidence has caused an expected rise in healthcare utilization, as well as, cost.

METHODOLOGY: A retrospective, observational chart review will be conducted to assess the management of DKA or HHS in patients presenting to FirstHealth Moore Regional Hospital between March 1st, 2020 and September 30th, 2020. Patients diagnosed with DKA or HHS and placed on insulin infusion for management will be included. Data elements that will be evaluated include insulin infusion and duration; potassium, phosphate, sodium, chloride, bicarbonate, albumin and magnesium levels; arterial blood gas; amount of fluid boluses administered and maintenance fluid rate; and presence of altered mental status. Patients who are less than 18 years old, pregnant, who received insulin therapy for a diagnosis other than DKA or HHS and renal failure patients on hemodialysis.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Samuel Pavlichek

TITLE: Evaluation of Thromboembolic Events After SARS-CoV-2 Infection

AUTHORS: Samuel Pavlichek, John Carr, Susan Smith, Dylan Daniels, Bruce M. Jones

OBJECTIVE: Identify the rate at which thromboembolic events happen after inpatient admission for COVID-19

SELF ASSESSMENT QUESTION: What treatment increases the risk of thromboembolism in patients with COVID-19?

BACKGROUND: COVID-19 is known to induce a hypercoagulable state. Current guidelines do not recommend the routine use of anticoagulation in COVID-19 patients after discharge. The purpose of this study was to evaluate readmissions for thromboembolic events within 90 days in patients who were diagnosed with COVID-19.

METHODOLOGY: This was a retrospective analysis of adult inpatients diagnosed with an ICD-10 code indicating COVID-19 from 1/1/2020 through 10/2/2020, and followed for a 90-day period for readmission. Patients were excluded if they had a history of thromboembolism or receipt of therapeutic anticoagulation prior to COVID-19 diagnosis. The primary outcome was hospital readmission for thromboembolic event within 90-days. Key secondary outcomes included the effect of COVID-19 therapeutics on thromboembolism, and incidence of any thromboembolic event within 90-days of COVID-19 diagnosis.

RESULTS: There were 650 patients who met inclusion/exclusion criteria. The primary outcome occurred in 4 patients (0.6%). Any thrombosis occurred in 8.9% (n=58). These were made up of 33% pulmonary emboli (PE), 48% deep vein thromboses (DVT), 7% cerebrovascular accidents, and 12% mixed PE/DVTs. Age, gender, ethnicity, ferritin, and COVID-19 therapeutics were not correlated with increased risk of thromboembolism. Lower fibrinogen was associated with a significantly decreased risk of thromboembolism (381ng/mL vs. 567ng/mL, p=0.016). Advanced-dose prophylaxis had a statistically significantly higher rate of bleeding than standard-dose ($\chi^2=17.2$, p

Presenters: Lauren Longaker

TITLE: Benefit of Early Treatment with Remdesivir in Hospitalized COVID-19 Patients Receiving Non-invasive Oxygen Supplementation

AUTHORS: Lauren Longaker, Evan Lantz, Angela Wilson

OBJECTIVE: Summarize the difference, if any, between receiving remdesivir within 7 days of symptom onset compared to after 7 days.

SELF ASSESSMENT QUESTION: Is there a difference in outcomes when remdesivir is initiated within 7 days of symptom onset in patients with COVID-19 on non-invasive oxygen supplementation?

BACKGROUND: The purpose of this study was to assess the efficacy of remdesivir in COVID-19 patients requiring non-invasive supplemental oxygen related to the temporal relationship from date of symptom onset to initiation.

METHODOLOGY: This retrospective cohort study evaluated patients who were COVID-19 positive and receiving non-invasive oxygen supplementation. Eligible patients were separated into two groups, those who received remdesivir within 7 days of symptom onset or after 7 days. The primary endpoint was the median time to recovery related to time of remdesivir initiation from symptom onset. Secondary endpoints included mortality, length of stay and safety outcomes. Background characteristics were reported, and data was analyzed using appropriate statistical tests under the direction of a statistical analyst.

RESULTS: A total of 88 patients were included in the analysis. Patients who received remdesivir greater than 7 days after symptom onset had a median time to recovery of 5 days compared to 7 days in those initiated within 7 days (p=0.0160). Patients who received remdesivir within 7 days from symptom onset also had a mean length of stay one day longer those initiated after 7 days (p=0.0248). Three patients experienced elevation of liver function enzymes and two patients had an eGFR documented less than 30 mL/min/1.73m². Five patients died in the within 7 days group and 3 patients died in the after 7 days group (p=0.1402).

CONCLUSIONS: Patients who received remdesivir after 7 days of symptom onset experienced a faster time to clinical improvement and reduced length of stay. These results may have been confounded by statistical differences in baseline characteristics between groups.

Presentation link: <https://youtu.be/WRxjvJPn3js>

I Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

Presenters: Summer Sizemore

TITLE: Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

AUTHORS: Summer Sizemore, Megan Patel, Cyle White

OBJECTIVE: Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

SELF ASSESSMENT QUESTION: Which influenza testing modality is more effective in reducing time to diagnosis, oseltamivir prescription, and contact precautions?

BACKGROUND: Early and accurate influenza testing is imperative to identify infected patients, initiate antiviral therapy, and provide infection prevention measures. Prior to August 2019, the study institution primarily utilized antigen based influenza testing. This resulted in false negatives that were identified by a subsequent respiratory viral panel (RVP). Since then, the institution adapted polymerase chain reaction (PCR) testing, which has the highest sensitivity and specificity.

METHODOLOGY: This retrospective, observational review compared clinical outcomes in patients who tested positive for influenza via send out testing for respiratory viral pathogens after an initial antigen screen to patients who tested positive by PCR after PCR only testing implementation. Adult and pediatric patients were selected for a chart review in a 1:2 ratio with twice the amount of patients in the post-PCR implementation group. The primary outcome compared time to initiation of appropriate antiviral treatment. Secondary outcomes assessed time to confirmed diagnosis and time to contact precaution initiation.

RESULTS: A total of 174 patients were included; 58 in the pre-PCR group and 116 in the post PCR group. The primary outcome assessed mean time from first influenza test to oseltamivir prescription which was 45.3 hours in the pre-PCR group and 5.1 hours in the post-PCR group. The secondary outcome of mean time from first influenza test to confirmed diagnosis was 43.6 and 1.7 hours in the pre-PCR and post-PCR groups, respectively. Mean time from first medical contact to contact precautions was found to be 69.9 hours and 13.2 hours in the pre-PCR and post-PCR groups.

CONCLUSIONS: Patients receiving PCR based influenza testing experience a quicker time to oseltamivir prescription, influenza diagnosis, and contact precautions.

<https://www.youtube.com/watch?v=b0PxuPR6UsY>

L **Naloxegol for return of gastrointestinal function after colorectal surgery in patients prescribed opiates**

Room E

Presenters: Skyler Brown

TITLE: Naloxegol for return of gastrointestinal function after colorectal surgery in patients prescribed opiates

AUTHORS: SR Brown, JM McLoughlin, AJ Russ, MA Casillas, JM Buehler, SD Yeager, JR Yates

OBJECTIVE: Describe naloxegol's efficacy following colorectal surgery in patients prescribed opiates

SELF ASSESSMENT QUESTION: Naloxegol is a potentially useful option following colorectal surgery because: A) Its cost B) No REMS program C) Belongs to a drug class previously showing efficacy in population D) All of the above

BACKGROUND: Post-operative ileus and delayed return of gastrointestinal function are significant causes of morbidity and prolonged hospital stay in patients undergoing colorectal surgery. Enhanced recovery after surgery protocols have been developed across the United States, which frequently include peripherally acting mu receptor antagonists to reverse the effects of opiates on the gastrointestinal tract without compromising analgesia. Alvimopan is the most commonly used agent in the class, but it is contraindicated with the use of opioids chronically. Naloxegol is a potential alternative to alvimopan in patients prescribed chronic opioid analgesics. To our knowledge, naloxegol has not been studied in this patient population.

METHODOLOGY: In this single-center, retrospective cohort, adult patients prescribed opioid analgesics who underwent colorectal surgery at the University of Tennessee Medical Center were included. Patients were excluded for the following: receipt of alvimopan, admission for abdominal trauma, naloxegol prescribed prior to admission, naloxegol given once pre-operatively but not post-operatively, and patients who expire during hospitalization. Patients will be divided into two groups dependent upon the receipt of naloxegol. The naloxegol group received standard of care plus naloxegol 12.5 mg once pre-operatively, then 12.5 mg daily post-operatively until a bowel movement for up to seven days. The placebo group received standard of care. The primary endpoint is mean time to first bowel movement or discharge, whichever comes first. Secondary endpoints include incidence of post-operative ileus, length of stay, a cost-benefit analysis, and gastrointestinal adverse events. Using a two-sided alpha value of 0.05 and 80 percent power, it was determined that 68 total patients would need to be collected. The primary endpoint is to be evaluated using a linear multiple regression analysis, while other endpoints will be evaluated using a Mann-Whitney U or Chi-squared tests.

RESULTS: Our preliminary results found a non-statistically significant reduction in the primary endpoint in the naloxegol group by 25.6 hours ($p=0.101$). Additionally, naloxegol reduced length of stay by 2.3 days ($p=0.023$) and was well tolerated in the safety analysis.

CONCLUSIONS: Preliminary data suggests naloxegol may be a safe and effective alternative to alvimopan, especially in patients who are prescribed opiates not qualifying for the use of alvimopan. Additional data must be collected to meet power for this study.

O **Characterization of Venous Thromboembolism Rates in Standard- and High-Risk Multiple Myeloma Patients Treated with RVd vs KRd**

Room A

Presenters: Natalie Brumwell

TITLE: Characterization of Venous Thromboembolism Rates in Standard- and High-Risk Multiple Myeloma Patients Treated with RVd vs KRd

AUTHORS: Natalie Brumwell, Kathryn Maples, Kevin Hall, Adrian Gavre, Nisha Joseph, Subir Goyal

OBJECTIVE: Identify various VTE risk factors in patients with MM.

SELF ASSESSMENT QUESTION: What risk factors are associated with VTE incidence in MM patients?

BACKGROUND: The risk for venous thromboembolism (VTE) is elevated in multiple myeloma (MM) patients, especially those receiving IMiDs. This study's purpose is to evaluate VTE rates in transplant eligible, high-risk, newly diagnosed MM patients treated with RVd versus KRd to determine if stronger VTE prophylaxis is warranted in the KRd population. Further, VTE rates between standard- and high-risk patients receiving RVd will be compared to assess the relation of risk status to VTE rates.

METHODOLOGY: This is a single-center retrospective chart review of patients who underwent treatment of newly diagnosed MM with RVd or KRd between January 1, 2017 and August 31, 2020. Inclusion criteria are adults ≥ 18 with newly diagnosed multiple myeloma, on aspirin prophylaxis, and receiving treatment with at least one cycle of RVd or KRd. The primary outcomes include rate of first occurrence of VTE in patients treated with KRd versus high-risk patients treated with RVd and rate of first occurrence of VTE in standard-risk vs high-risk patients treated with RVd. Secondary outcomes include time (days) to first VTE and VTE-related death.

RESULTS: Eighty-seven patients were included, with 30 patients each in the RVd standard-risk and high-risk groups, and 27 patients in the KRd group. In the RVd standard-risk vs high-risk group, 3 VTEs (10%) occurred vs 0, respectively ($p=0.237$). In the RVd high-risk vs KRd groups, 0 vs 3 VTEs (11.1%) occurred, respectively ($p=0.100$). The entire RVd group yielded 5% VTE rate vs 11.1% with KRd. The average time to first VTE was comparable for RVd vs KRd at 100 days vs 102 days, respectively.

CONCLUSIONS: There was not a significant difference of VTE rates between the groups; however, the overall higher rate with KRd may warrant stronger prophylaxis.

VIDEO LINK: <https://youtu.be/RKK2xqHztAw>

1 Evaluating Anticoagulation From Low Molecular Weight Heparin In Hematopoietic Stem Cell Transplant Recipients

Room F

Presenters: Kelli McCrum

TITLE: Evaluating Anticoagulation From Low Molecular Weight Heparin In Hematopoietic Stem Cell Transplant Recipients

AUTHORS: Kelli McCrum

OBJECTIVE: Identify anti-factor Xa level trends in patients receiving therapeutic doses of enoxaparin who have received a hematopoietic stem cell transplant.

SELF ASSESSMENT QUESTION: What factor should be taken into consideration when dosing therapeutic enoxaparin?

BACKGROUND: Historically, enoxaparin kinetics have been considered predictable, making anti-Xa monitoring obsolete unless a patient is pregnant, obese, or has poor renal function. However, a 2011 study found that solid organ transplant recipients may be a patient population where anti-Xa monitoring may be necessary. The study found that 67% of patients receiving therapeutic enoxaparin had supratherapeutic anti-Xa levels requiring dose reductions. Additionally, the study proposed a theoretical drug-drug interaction between enoxaparin and tacrolimus, the standard immunosuppressive used in both solid organ and hematopoietic stem cell transplant (HSCT) recipients.

METHODOLOGY: In an attempt to gain insight on safe and effective low molecular weight heparin (LMWH) dosing in patients who have undergone HSCT, anti-Xa levels are being monitored for HSCT recipients and patients with a leukemia or lymphoma diagnosis who are receiving enoxaparin for a therapeutic indication from December 2020 to April 2021.

RESULTS: Between December 2020 and April 2021, thirteen patients received therapeutic enoxaparin at a dose of 1mg/kg every 12 hours. Eight patients required dose adjustments for supratherapeutic anti-Xa levels. The average weight based dose for these patients is 0.7 mg/kg. Five of the eight patients requiring a dose adjustment had previously received a stem cell transplant. None of the thirteen patients received tacrolimus while receiving enoxaparin.

CONCLUSIONS: Data supports the notion that traditional 1mg/kg enoxaparin dosing may cause supratherapeutic anti-Xa levels in patients who have received a HSCT. Data collection will continue as more data is needed to draw any formal conclusions.

B Implementation of a Clinical Pharmacy Transitions of Care Initiative for Patients with Ambulatory Care Sensitive Conditions (ACSC)

Room J

Presenters: Keeya Turner

TITLE: Implementation of a Clinical Pharmacy Transitions of Care Initiative for Patients with Ambulatory Care Sensitive Conditions (ACSC)

AUTHORS: Keeya Turner, Amanda Karels, Cassandra Warsaw, Erin Amadon

OBJECTIVE: Describe results of clinical pharmacist specialists (CPS) inclusion in transition of care for patients with ACSC hospitalizations

SELF ASSESSMENT QUESTION: Which of the following are considered ACSC that are evaluated in the SAIL value model?

BACKGROUND: ACSC hospitalizations and readmissions were identified as an area for potential improvement in response to the Strategic Analytics for Improvement and Learning (SAIL) value model. The SAIL model is a national initiative implemented to improve hospitals' performance within the Veterans Health Administration.

Conditions classified as ACSC include hypertension, diabetes, pneumonia (PNA), congestive heart failure (CHF), and chronic obstructive pulmonary disease (COPD).

This project's aim was to reduce ACSC hospital readmissions by including counseling from CPS.

METHODOLOGY: This project was a quality improvement retrospective cohort analysis, which included patients discharged from Fayetteville VA Medical Center (FVAMC) between July and September 2020. ACSC hospitalizations were identified by admission diagnosis of COPD, CHF, or PNA. The primary endpoint was percentage of ACSC patients seen by a CPS within 14 days of discharge, stratified by CPS clinic. Secondary endpoints included number of CPS interventions, percentage of ACSC patients with medication review documented by inpatient CPS, and frequency of 30-day readmissions for ACSC patients encountered by CPS.

RESULTS: Thirty-five percent of ACSC patients were encountered by a CPS within 14 days of discharge. There were 48 medication interventions made by CPS during follow up appointments. The inpatient CPS reviewed 71% of the patients admitted to FVAMC for ACSC hospitalizations. There were only 2 ACSC readmissions within 30 days of discharge.

CONCLUSIONS: This project provides insight to CPS impact during transitions of care. It also has potential to generate future projects concerning the discharge and documentation process within FVAMC. Ultimately, this may benefit SAIL ratings and help improve patient care within FVAMC.

B Improving diabetes management for veterans through implementation of a population health-based telepharmacy clinic

Room K

Presenters: Rachele Kelley

TITLE: Improving diabetes management for veterans through implementation of a population health-based telepharmacy clinic

AUTHORS: Rachele Kelley, Courtney Gamston, Pamela Stamm, Garrett Aikens, Greg Peden, P. David Brackett, Kimberly Braxton-Lloyd

OBJECTIVE: List interventions made through implementation of a telepharmacy diabetes service.

SELF ASSESSMENT QUESTION: What is the impact of a population health based telepharmacy diabetes service?

BACKGROUND: Population health management utilizes data from an entire community of patients to develop strategies to improve health outcomes. Population health data from a rural clinic of the VA system have demonstrated the need for enhanced care for its patients with diabetes. To improve the quality of care provided to veterans of this area, a population health-based telepharmacy service housed within a school of pharmacy was developed to provide a diabetes management service.

METHODOLOGY: Eligible veterans were identified through population health dashboards as having no A1C measurement and/or an A1C \geq 9% within the last 12 months. Eligible patients were recruited by phone to participate in a telepharmacy-based comprehensive diabetes intervention. Clinical pharmacists and fourth-year pharmacy students on advanced practice rotations provided disease state counseling, medication therapy management, and referrals, as indicated. Service evaluation will occur through a comparison of pre-/post-intervention data including A1C, medications, medication adherence, blood pressure, fasting blood glucose, and adherence to diabetes guideline recommendations.RESULTS: Since the initial analysis of the first population health dashboard in August 2020, several patients have been contacted to have labs drawn, some of which has an A1C \geq 9%, resulting in a reduction in patients needing labs and an increase in patients with A1C \geq 9%. Since the initiation of the comprehensive diabetes clinic visits, five patients have been enrolled and several drug-related problems (DRPs) have been addressed.

CONCLUSIONS: Although unable to compare pre-/post data since initiation of clinic, several DRPs were addressed. Of those patients we have contacted thus far, all were willing to enroll in the clinic to receive pharmacy management for their diabetes care. Initial and follow-up appointments are currently ongoing.

R Comparison of Incremental Versus Percentage Dose Adjustment Protocols for Patients on Extracorporeal Membrane Oxygenation (ECMO) Support Receiving Argatroban

Room B

Presenters: Carys Davies

TITLE: Comparison of Incremental Versus Percentage Dose Adjustment Protocols for Patients on Extracorporeal Membrane Oxygenation (ECMO) Support Receiving Argatroban

AUTHORS: C. Davies, N. Badger-Plange, H. Powell, C. Moran, D. Garrett, A. Komisar, C. Parry

OBJECTIVE: To determine if an incremental versus a percentage-based dose adjustment nomogram for argatroban for ECMO anticoagulation requires fewer total changes over the course of therapy.

SELF ASSESSMENT QUESTION: Is an incremental or a percentage-based nomogram for argatroban dosing for ECMO safer for patients?

BACKGROUND: Systemic anticoagulation is required for patients supported on extracorporeal membrane oxygenation (ECMO). Unfractionated heparin has been the gold-standard anticoagulant used. However, critically-ill patients on ECMO may develop thrombocytopenia, leading to concerns for heparin-induced thrombocytopenia (HIT). Hence, the use of argatroban for this indication has increased. Further research is warranted to define goal activated partial thromboplastin time (aPTT) ranges and dose adjustment protocols to provide safe and effective anticoagulation.

METHODOLOGY: This study was conducted via retrospective chart review. Adult patients receiving argatroban while on ECMO were included. Patients were excluded if argatroban was discontinued before two therapeutic aPTT values. Patients started on a newly-implemented, incremental dose adjustment protocol ("incremental group") were matched to those who received argatroban on the previously used percentage-based dose adjustment protocol ("percentage group"). Endpoints included average number of dose adjustments per day, total percentage of therapeutic aPTT values, and dosing errors in each protocol.

RESULTS: A total of 26 patients were included in this study with 13 patients each group. The average number of dose adjustments per day were 0.78 in the incremental group and 0.67 in the percentage group ($p=0.5$). The total percent of therapeutic aPTT values in the incremental group was 62% and 65% in the percentage group ($p=0.65$). There were 3 protocol errors in the incremental group and 0 in the percentage group ($p=0.72$).

CONCLUSIONS: While there were no statistically significant differences in endpoints between both groups, the increased frequency of errors in the incremental group was concerning for patient safety. Therefore, the percentage-based dose adjustment protocol was safer for use.

Video link: <https://vimeo.com/538967725>

Presenters: Taylor Tanner

TITLE: Impact of adrenergic vasopressor exposure in a community teaching hospital intensive care unit

AUTHORS: Taylor Tanner, Sarah Blackwell, Kenda Germain

OBJECTIVE: To evaluate the effect of decreased maximum adrenergic vasopressor dosages on overall vasopressor exposure

SELF ASSESSMENT QUESTION: Does lowering vasopressor dosage caps reduce overall vasopressor exposure?

BACKGROUND: Vasopressors are commonly administered to intensive care unit (ICU) patients for hemodynamic support; however, their use may decrease perfusion to vital areas of the body, resulting in adverse effects. In 2016, a new intensivist group at Princeton Baptist Medical Center (PBMC) drove a global reduction in maximum vasopressor dosage limits, leading to questions of whether optimal doses exist.

METHODOLOGY: This is a single-center, retrospective, comparative group study conducted in patients admitted to the Medical ICU at PBMC from August to October 2016 and 2019. Patients were included if they were 19 years of age or older and received infusion(s) of epinephrine, norepinephrine, and/or phenylephrine for at least 4 hours. Patients who died, transferred to inpatient hospice within 24 hours of adrenergic vasopressor initiation, transferred from an outside hospital ICU, were pregnant, or received hemodynamic support pending organ harvest were excluded. The primary outcome was mean adrenergic vasopressor dose in norepinephrine equivalents over the first 72 hours. Secondary outcomes included number of concomitant vasopressors, incidence of vasopressin initiation, index ICU length of stay after vasopressor initiation, shock-free survival, and incidence of acute kidney injury, digital necrosis, and mesenteric ischemia.

RESULTS: There were 79 patients included, 41 in the pre-implementation group and 32 in the post-implementation group. There was no statistically significant difference in mean adrenergic vasopressor dose between the two groups ($p=0.17$).

CONCLUSIONS: There was no difference in overall vasopressor exposure between groups; however, incidence of the addition of phenylephrine and vasopressin were higher post-implementation. This study suggests that lowering vasopressor dosage caps may lead to increased utilization of secondary agents.

Video presentation: <https://vimeo.com/543186798>

Presenters: Hannah Christensen

TITLE: Reducing Hypoglycemia in the Cardiovascular Intensive Care Unit

AUTHORS: Hannah Christensen, Jessica Odom, Lyndsay Gormley, John Bruch, Austin Roe, Alex Ewing

OBJECTIVE: Determine if less conservative blood glucose targets in cardiac surgery patients reduces hypoglycemia incidence without increasing sternal wound infection rates.

SELF ASSESSMENT QUESTION: What are risk factors for sternal wound infection?

BACKGROUND: Hypoglycemia (blood glucose ≤ 70 mg/dL) is associated with increased risk of mortality in intensive care unit (ICU) patients. Conversely, hyperglycemia (blood glucose ≥ 180 mg/dL) in cardiovascular surgery patients is an independent risk factor for postoperative sternal wound infection (SWI). SWI prolongs hospital stay and is associated with significantly increased morbidity and mortality. Postoperatively, current guidelines recommend a continuous intravenous insulin infusion to maintain blood glucose < 180 mg/dL. Beyond this threshold, there is conflicting evidence on the degree of glycemic control intensity to optimize patient outcomes without increasing hypoglycemia. All cardiac surgery patients at our institution receive an insulin infusion controlled by a computer-based algorithm to maintain perioperative blood glucose within a target range, previously set at 100-140 mg/dL. In September 2020, the glycemic target was changed to 120-160 mg/dL. The objective of this study was to determine if increasing perioperative serum blood glucose targets for patients undergoing median sternotomy cardiac surgery from 100-140 mg/dL to 120-160 mg/dL reduces hypoglycemia incidence without increasing SWI rates.

METHODOLOGY: A single-center, retrospective, pre- and post-intervention analysis was conducted. The pre-implementation period included October to December 2019, with a run-in period during September 2020. The post-implementation period encompassed October to December 2020. Patients included adults admitted to the Prisma Health – Upstate Greenville Memorial Hospital CVICU on continuous insulin infusions after cardiac surgery. Patients placed on extracorporeal membrane oxygenation or who died during surgery were excluded. The primary outcome was hypoglycemia incidence < 70 mg/dL. Key secondary outcomes included 30-day SWI incidence, all-cause mortality, time on insulin drip, incidence of severe hypoglycemia < 40 mg/dL, bloodstream infection, and postoperative renal failure.

RESULTS: The number of hypoglycemic events < 70 mg/dL per 1,000 ICU days significantly decreased from 73.37 to 27.34 ($p < 0.001$). There was no significant difference in 30-day sternal wound infection rates or any other key secondary outcomes.

CONCLUSIONS: A perioperative target glucose range of 120-160 mg/dL significantly reduced rates of hypoglycemia in CVICU patients after cardiac surgery, compared to a target range of 100-140 mg/dL, without increasing rates of sternal wound infection.

I **Remdesivir 5 vs 10 days of therapy in patients with COVID-19 on invasive mechanical ventilation or extracorporeal membrane oxygenation**

Room I

Presenters: Lindsay Oehlkers

TITLE: Remdesivir 5 vs 10 days of therapy in patients with COVID-19 on invasive mechanical ventilation or extracorporeal membrane oxygenation

AUTHORS: Lindsay Oehlkers, Jarett Worden, and Kwame Asare

OBJECTIVE: Compare five versus 10 days of remdesivir therapy in patients with COVID-19 who require invasive mechanical ventilation or ECMO.

SELF ASSESSMENT QUESTION: Is there a difference in clinical status in patients with COVID-19 who are treated with five versus 10 days of remdesivir therapy who require invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO)?

BACKGROUND: COVID-19, or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified in December 2019, and has since caused over 24 million cases in the United States alone, leading to over 500,000 deaths. To date, there are no published studies assessing shorter courses (

I **Time series analysis evaluating the short- and long-term impacts of a multifaceted approach to targeting fluoroquinolone use in a tertiary, non-teaching hospital**

Room H

Presenters: Brianna Belsky

TITLE: Short- and long-term impacts of a multifaceted approach to targeting fluoroquinolone use in a tertiary, non-teaching hospital

AUTHORS: Brianna Belsky, Quentin Minson

OBJECTIVE: Evaluate the impact of a multifaceted approach to decreasing fluoroquinolone use on consumption of fluoroquinolones and common alternative antibiotics at a tertiary, non-teaching hospital.

SELF ASSESSMENT QUESTION: Does the implementation of a multifaceted approach to decreasing fluoroquinolone use lead to significant changes in antimicrobial consumption and resistance rates on an antibiogram at a tertiary, non-teaching hospital?

BACKGROUND: Fluoroquinolone use is a known risk factor for multi-drug resistant organisms, which results in higher hospital costs. Previous studies have shown that restricting fluoroquinolones can lead to reversals in resistance of various bacteria and decrease superinfections. A variety of strategies exist to decrease fluoroquinolone use, but feasibility and efficacy differ depending on the setting and available resources.

METHODOLOGY: This study is a single-center, retrospective, interrupted time series analysis spanning from January 2011 to December 2019 at a 288-bed tertiary, non-teaching hospital with 71 ICU beds. The fluoroquinolone restriction policy was implemented in September 2014. The primary outcome is trends in fluoroquinolone consumption measured by defined daily doses per 1000 adjusted patient days (DDD/1k APD). Secondary outcomes included the consumption of alternative antimicrobials measured by DDD/1k APD and the impact on *Pseudomonas aeruginosa* susceptibilities.

RESULTS: Fluoroquinolone consumption decreased from 100.20 DDD/1000 APD in August 2014 to 73.96 DDD/1000 APD in October 2014. Fluoroquinolone consumption decreased further to 14.89 DDD/1000 APD in

December 2019. The only significant increase in other classes of antimicrobials was seen with tetracyclines.

Levofloxacin susceptibility rates for *Pseudomonas aeruginosa* increased from 61% in 2014 to 83% in 2018.

CONCLUSIONS: A significant decrease in fluoroquinolone consumption was seen during the late post-intervention period and a significant increase in levofloxacin susceptibility was seen for *Pseudomonas aeruginosa* after the implementation of a fluoroquinolone restriction policy.

PRESENTATION LINK: <https://www.youtube.com/watch?v=RzQ8oSL84Ts>

Presenters: Christina DiCola

TITLE: Evaluating the Safety of an Apixaban Loading Dose for New Venous Thromboembolism Events in Patients with Severe Kidney Disease

AUTHORS: Christina DiCola, Paul Pleczkowski, Lexie Zidanyue Yang, James Merchant Jr.

OBJECTIVE: To describe appropriate apixaban therapy in patients with severe renal dysfunction diagnosed with a VTE

SELF ASSESSMENT QUESTION: Based on current recommendations from the drug manufacturer, what is the initial dose for a patient with CKD-V and a newly diagnosed DVT wishing to start apixaban therapy?

- a) apixaban 2.5mg twice daily
- b) apixaban 5mg twice daily
- c) apixaban 7.5mg twice daily
- d) apixaban 10mg twice daily**

BACKGROUND: Each year, there are 10 million cases of venous thromboembolism (VTE) reported. Apixaban is an oral anticoagulant used as treatment for VTE. There is a lack of data for the use of apixaban in new VTE events among patients with Chronic Kidney Disease (CKD) stage IV, V, or End-Stage-Renal-Disease (ESRD).

METHODOLOGY: This retrospective, single center, observational cohort study included patients 18 years and older who received apixaban for a newly diagnosed VTE from September 2014 to September 2020. Included patients had CKD-IV, CKD-V, or ESRD. Patients were placed into two apixaban treatment groups: loading dose vs. maintenance dose.

RESULTS: A total of 97 patients were included. The composite bleed event rate was 14.3% for the loading dose group and 11.6% for the maintenance dose group (risk difference, 2.7% [90% CI, -9.9% to 15.3%]; P=0.59 for non-inferiority). The proportion of VTE reoccurrences was higher in the loading dose group compared to the maintenance dose group (17.9% vs. 8.7%).

CONCLUSIONS: An apixaban loading dose for new VTE events may be safe in patients with CKD-IV, CKD-V, or ESRD.

Presenters: Keenya Leggette

TITLE: Evaluation of the Integration of Simulation to Teach Medication Safety

AUTHORS: Keenya Leggette; Ronda Whipple; Sarah Braga; Andrea McKeever

OBJECTIVE: Identify teaching methodologies for medication safety that improve student performance and confidence.

SELF ASSESSMENT QUESTION: Which teaching methodologies for medication safety improved student performance and confidence?

BACKGROUND: The purpose of the study is to assess student performance and confidence with the integration of simulation to teach medication safety. Effectiveness of teaching is critical for students' development of knowledge and skill sets. Lecture continues to be utilized to help establish foundational knowledge, and active learning methodologies (e.g., simulation) have increased to reinforce classroom instruction and offer opportunities for application.

METHODOLOGY: This study is a prospective evaluation of student performance on medication safety related activities in a school of pharmacy drug information course. Enrolled students voluntarily participated in three quiz knowledge assessments and one activity survey. Each quiz was 10-minutes in duration and consisted of the same five medication safety questions administered at baseline, post didactic lecture, and post simulation. The simulation was a team-based root cause analysis involving various clinical scenarios. The final simulation survey was administered at the completion of all activities and included eight questions related to student confidence and preparedness.

RESULTS: Forty-six students participated in at least one knowledge assessment quiz. Scores were deidentified and composite analysis was performed. Of the 46 participants, 87% completed the baseline quiz, 91% completed the post-didactic quiz, and 89% completed the post-simulation quiz. The mean scores for the quizzes were 73.5%, 79.5%, and 88.8%, respectively. Forty-two students completed the simulation survey (91% of original 46 students). At baseline, 4.76% of the students were extremely confident, 2.38% very confident, 33.33% somewhat confident, 35.71% not so confident, and 23.81% not at all confident in their ability to perform a root cause analysis. Responses were 2.38%, 21.43%, 69.05%, 2.38%, and 4.76% post-lecture, respectively, and 7.14%, 69.05%, 21.43%, 0%, and 2.38% post-activity, respectively.

CONCLUSIONS: Student performance and confidence improved with lecture and simulation.

<https://youtu.be/q-XZI4pLwjc>

B DESCRIPTION AND FINANCIAL IMPACT OF AMBULATORY CARE PHARMACIST INTERVENTIONS WITHIN AN UNDERSERVED PATIENT POPULATION

Room K

Presenters: Salman Hasham

TITLE: DESCRIPTION AND FINANCIAL IMPACT OF AMBULATORY CARE PHARMACIST INTERVENTIONS WITHIN AN UNDERSERVED PATIENT POPULATION

AUTHORS: Salman Hasham, Maria Miller Thurston, Pamela Moye-Dickerson, Teresa Pounds

OBJECTIVE: Characterize and quantify the types of interventions performed by an ambulatory care pharmacy team.

SELF ASSESSMENT QUESTION: What is the financial impact of having an ambulatory care pharmacist at an outpatient clinic?

BACKGROUND: Characterize and quantify the types of interventions performed by an ambulatory care pharmacy team (ACPT).

METHODOLOGY: Retrospective, single-center cohort study designed to characterize and quantify types of ACPT interventions performed, evaluate the financial impact of such interventions, and create a cost template for the interventions using the health system's i-Vent intervention documentation system. Eligible participants included in this study were patients age 18 or older who had an appointment at Wellstar Atlanta Medical Center's Sheffield HealthCare Center from 07/01/2018 to 06/30/2020 and received a pharmacy consult. The following data was collected: intervention types, number of specific interventions, the economic impact per intervention, average cost avoidance per intervention, total economic impact, and total cost avoidance.

RESULTS: There were four major categories of interventions which included patient counseling, drug utilization review, medication therapy management, and drug information. Each category was divided into subcategories, with a total of eighteen different subcategories. There were a total of 1334 interventions documented by ACPT during the two-year study period. The most frequently documented intervention was medication therapy management, with a total of 630 interventions. The economic impact per intervention was approximately \$30 per intervention. The average cost avoidance was estimated to be \$357.62 per intervention. The total economic impact was \$40,020. The total cost avoidance was \$477,065.

CONCLUSIONS: Of the over 1000 ACPT interventions conducted, medication therapy management was the most commonly documented intervention. The interventions have been associated with a significant amount of economic impact and cost avoidance for the health system. The data from the study has allowed for the creation of a cost for specific ambulatory care interventions using the health system's i-Vent intervention documentation system.

B INR Stabilization After Withholding Warfarin for Colonoscopy

Room J

Presenters: Sally Sikes

TITLE: INR Stabilization After Withholding Warfarin for Colonoscopy

AUTHORS: Sally Sikes, PharmD, Kelley Baxter, PharmD, Matt Bibb, PharmD, BCGP

OBJECTIVE: State the median number of days to INR stabilization after withholding warfarin for colonoscopy.

SELF ASSESSMENT QUESTION: What was the median time in days to INR stabilization post-colonoscopy?

BACKGROUND: Determine the time to INR stabilization after withholding warfarin for colonoscopy.

METHODOLOGY: This study is an IRB-approved, retrospective chart review of patients 18 years of age and older enrolled in the AMC who underwent a colonoscopy between September 1, 2016 and September 30, 2018. Patients were excluded if they were not monitored by AMC periprocedurally, had additional procedures performed within 4 weeks of colonoscopy, or were lost to follow-up post-colonoscopy prior to INR stabilization. The primary objective is to determine the time to INR stabilization after withholding warfarin for colonoscopy.

RESULTS: Forty patients were included in the study. The median time to INR stabilization post-colonoscopy was 40 days [IQR, 28-63]. There was no difference in the median warfarin TWD pre-colonoscopy versus post-colonoscopy (41mg [IQR, 33-54]). Patients with documented drug-drug interactions took longer to reach stable INR status (64 days, [IQR, 57-75]) than those without drug-drug interactions (35 days, [IQR, 25-55]). Patients who were on parenteral anticoagulation reached stable INR status quicker than those who were not (28 days [IQR, 23-38] versus 50 days [IQR, 33-54]). Patients considered more stable (INR checking frequency of 5-6 weeks) took longer to reach stabilization post-colonoscopy. These findings are likely due to the more stable patients and patients who didn't require parenteral therapy being scheduled for extended INR checking frequency intervals faster than the other groups.

CONCLUSIONS: The median time to INR stabilization after withholding warfarin for colonoscopy was 40 days.

R Pharmacokinetic Comparison of AUC/MIC Dosing Vancomycin Versus Traditional Trough-Based Dosing in the Critical Care Setting

Room C

Presenters: Courtney McDonald

TITLE: Pharmacokinetic Comparison of AUC/MIC Dosing Vancomycin Versus Traditional Trough-Based Dosing in the Critical Care Setting

AUTHORS: Courtney McDonald, Josh Chestnutt, Deanne Tabb

OBJECTIVE: Describe how the implementation of a Bayesian AUC calculator can affect clinical outcomes.

SELF ASSESSMENT QUESTION: What is the benefit of implementing a Bayesian AUC calculator for vancomycin dosing?

BACKGROUND: Vancomycin has a complex pharmacokinetic profile making dosing and monitoring difficult. Recent studies evaluating dosing based on the area under the curve (AUC) over 24 hours/minimum inhibitory concentration (AUC/MIC) are gaining recommendation. Bayesian models using existing population parameters and patient's individual parameters can be used to calculate a vancomycin dose required to provide specific AUC values. The purpose of this study is to evaluate Bayesian AUC/MIC dosing in the intensive care patients versus the traditional trough-based dosing in preparation for selection of an appropriate AUC-guided dosing tool.

METHODOLOGY: A retrospective chart review was conducted to evaluate trough-based vancomycin dosing protocol between October 1, 2019 through September 30, 2020. Patients who received intravenous vancomycin with at least one level drawn were evaluated. The primary outcome was percentage of patients with predicted AUC values above 600 mg·hr/L as well as predicted AUC values below 400 mg·hr/L using a Bayesian estimated-assisted AUC value.

RESULTS: A total of 54 patients were included in the study. Predicted Bayesian-AUC value was above 600 mg·h/L in 18/54 (33%) of patients potentially increasing risk for acute kidney injury (AKI). Predicted AUC below 400 mg·h/L occurred in 4/54 (7%) of patients indicating potential subtherapeutic dosing.

CONCLUSIONS: Using trough-based dosing showed predicted Bayesian-AUC values above therapeutic goal in one-third of patients increasing risk for AKI. Implementing a Bayesian AUC calculator can allow for a more targeted dose within the predicted AUC while minimizing lab draws. In conclusion, Piedmont can benefit from the use of a Bayesian AUC calculator.

R SAFETY OUTCOMES OF TENECTEPLASE VERSUS ALTEPLASE FOR ACUTE ISCHEMIC STROKE

Room B

Presenters: Mary Walton

TITLE: SAFETY OUTCOMES OF TENECTEPLASE VERSUS ALTEPLASE FOR ACUTE ISCHEMIC STROKE

AUTHORS: Mary N. Walton, Leslie A. Hamilton, Sonia Kennedy, Brian Wiseman, Ann M. Forester, A. Shaun Rowe

OBJECTIVE: Describe the utility of tenecteplase in acute ischemic stroke and its safety versus alteplase.

SELF ASSESSMENT QUESTION: What is one benefit of utilizing tenecteplase as the primary thrombolytic for acute ischemic stroke treatment?

BACKGROUND: Tenecteplase (TNK) is a genetically engineered fibrinolytic with greater specificity for fibrin-bound clots compared to alteplase. Previous studies have shown that tenecteplase is as effective as alteplase for neurologic improvement, and when administered at 0.25 milligrams per kilogram, may have fewer bleeding complications. The purpose of this study is to determine if safety outcomes are different in patients receiving tenecteplase versus alteplase for acute ischemic stroke.

METHODOLOGY: We reviewed patients 18 years and older receiving alteplase or tenecteplase for acute ischemic stroke from July 1, 2016, to December 31, 2020. Patients admitted before April 28, 2020, received alteplase 0.9 mg/kg as a 10% intravenous (IV) bolus over one minute followed by the remaining dose as an IV infusion over one hour. Patients admitted after this date received tenecteplase 0.25 mg/kg IV bolus over five to ten seconds. Any patient transferring from an outside facility were excluded. The primary objective of this study is to determine if major bleeding as defined by the 2005 ISTH or GUSTO definition is significantly different in patients receiving tenecteplase versus alteplase for acute ischemic stroke. The secondary functional objectives are change in modified Rankin scale, post-thrombectomy reperfusion of the ischemic territory based on TIC1 (thrombolysis in cerebral infarction) score, and mortality.

RESULTS: There was no significant difference in major bleeding between alteplase and tenecteplase [45 (25%) vs. 20 (17%), $p=0.104$, respectively]. There was also a trend toward decreased hospital length of stay for tenecteplase compared to alteplase [4 days vs. 6 days, $p<0.0001$]. There was no difference in all-cause inpatient mortality [16 (9%) vs. 5 (4%), $p=0.128$]. Additionally, there were no significant differences in adverse events between the groups [18 (10%) vs. 14 (12%), $p=0.599$].

CONCLUSIONS: Tenecteplase had similar rates of major bleeding versus alteplase in the treatment of acute ischemic stroke. Tenecteplase may be considered as a primary thrombolytic in place of alteplase for acute ischemic stroke.

Presenters: Courtney King

TITLE: Impact of oral vs parenteral anticoagulation on thrombotic events in hospitalized SARS-CoV-2 population

AUTHORS: Courtney King, Abigayle R Campbell, Stephanie A Smith, Lauren R Whitfield

OBJECTIVE: Describe the optimal anticoagulation regimen for hospitalized SARS-CoV-2 positive patients

SELF ASSESSMENT QUESTION: True or false: SARS-CoV-2 positive patients are at an increased risk of thrombotic events due to the virus.

BACKGROUND: The exact mechanism of coagulopathy in SARS-CoV-2 positive population is unknown, however it is likely multifactorial. At this time an optimal anticoagulation strategy has not been identified to prevent thrombotic events in hospitalized patients. The purpose of this study is to determine if oral or parenteral anticoagulation impacts the percentage of inpatient SARS-CoV-2 patients that develop a thrombotic event.

METHODOLOGY: This single-center retrospective chart review included data from March 1, 2020 - November 30, 2020. Patients were enrolled if they were ≥ 18 years old with a positive SARS-CoV-2 diagnosis, hospitalized ≥ 72 hours, and received ≥ 1 dose of an anticoagulant. Patients were excluded if they had an active bleed, platelets $< 50,000$, hemoglobin < 7 , less than 18 years old, had any contraindication to anticoagulation therapy, had history of heparin-induced thrombocytopenia with or without thrombosis, or were pregnant. The primary outcome is the percentage of patients that develop a thrombotic event during hospitalization. Secondary outcomes include percentage of patients with major bleed, time to intensive care unit (ICU) stay, ICU length of stay, hospital length of stay, and in-hospital mortality.

RESULTS: The primary outcome was found to be statistically significant ($p < 0.0001$). Secondary outcomes of ICU length of stay and time to ICU were also statistically significant ($p = 0.008$ and $p = 0.0097$ respectively).

CONCLUSIONS: Although the data is statistically significant, it may not be clinically significant. Multiple confounders were present that could have skewed results. More analysis is needed to determine the effect of anticoagulation on the rate of venous thromboembolism in this patient population.

<https://youtu.be/jUe8xgO9BqE>

Presenters: Stephanie Yasechko

TITLE: Time to Positive Blood Cultures in the Pediatric Intensive Care Unit

AUTHORS: Stephanie Yasechko, Alfred Fernandez, Mark Gonzalez, Preeti Jaggi, and Alison Smith

OBJECTIVE: Describe blood culture TTP in a PICU.

SELF ASSESSMENT QUESTION: What variables may affect blood culture TTP in critically ill pediatric patients?

BACKGROUND: The Surviving Sepsis Campaign recommends obtaining blood cultures before initiation of antibiotics. In most institutions, patients are empirically treated for at least 48 hours while awaiting blood culture results. However, this practice is based on minimal evidence. The aim of our study was to assess time to positive blood cultures in the Pediatric Intensive Care Unit (PICU).

METHODOLOGY: This retrospective chart review included patients 0-20 years of age with positive blood cultures obtained in or within 48 hours of transfer to our PICU between January 1, 2018 and June 30, 2020. Patients' first positive blood culture for a particular organism was used to evaluate the primary end point of time between blood culture draw and gram stain result. Secondary endpoints included: percentage of cultures reported by time and time to positivity (TTP) by organism grown, volume of blood sample, and host risk level.

RESULTS: 164 total cultures were included for analysis. The median TTP was 13.3 hours (IQR 10.7-16.8 hours). By 12, 24, 36, and 48 hours, 37%, 89%, 95%, and 98% of all blood cultures were positive, respectively. Median TTP stratified by host risk level was 13.22 hours for previously healthy patients, 13.95 hours for those standard risk (presence of at least one comorbidity), and 10.58 hours for high risk patients (severely immunocompromised) ($P = 0.001$). Median TTP was found to be independent of blood volume, and no significant difference was seen in TTP for gram negative and gram positive organisms (12.22 vs. 13.86 hours, $P = 0.2$).

CONCLUSIONS: The decision to continue empiric antibiotics in the absence of positive blood cultures could be re-evaluated as early as 24 hours to spare patients from unnecessary antibiotic exposure.

Presenters: Heidi King

TITLE: Evaluation of pharmacy-driven medication access initiatives in the inpatient setting

AUTHORS: Heidi King, Megan Bereda, Carrie Tilton, Jessica Nave, Nicole Metzger

OBJECTIVE: Describe the impact of inpatient pharmacist-driven transitions of care services on clinical outcomes.

SELF ASSESSMENT QUESTION: What impact did pharmacist-driven transitions of care initiatives have on hospital length of stay?

BACKGROUND: Pharmacists can improve transitions of care at discharge through ensuring patients can afford their discharge prescriptions, but there is limited published data on whether these interventions improve clinical outcomes. The purpose of this study is to evaluate the impact of medication access interventions prior to discharge by pharmacy personnel.

METHODOLOGY: This is a single center retrospective cohort study of adult patients admitted from January 1, 2014 to August 31, 2020. The primary outcome is hospital length of stay. Secondary outcomes include all-cause readmissions at 7-days, 30-days, and 90-days and a summary of the type of interventions, success in approval, turnaround time, cost savings, and adherence.

RESULTS: The average length of stay for case patients was 9.1 ± 9.7 days. Anticoagulants were the most common medication pharmacists intervened on. After pharmacist interventions, most copays for medications were < \$10, and most interventions took between 30 minutes to 1 hour to complete.

CONCLUSIONS: Pharmacists were able to make interventions on 155 case patients.

PRESENTATION LINK: <https://youtu.be/73zkyloQWWo>

Presenters: Richard Liu

TITLE: Evaluation of Antimicrobial Prescribing and Follow-up for Urinary Cultures in the Advanced Care Center (ACC)

AUTHORS: Richard Liu, Gabby Furgieue, Ruaa Al-Baldawi, and Kayla Randle

OBJECTIVE: Evaluate the efficacy and appropriateness of antimicrobial prescribing and urine culture follow-up for urinary tract infections (UTIs) in ACCs

SELF ASSESSMENT QUESTION: Describe a benefit of ASP implementation?

BACKGROUND: Antibiotic stewardship programs (ASPs) are essential in slowing antimicrobial resistance as well as improve timely antimicrobial selections, reduce antibiotic overuse, and decrease unnecessary adverse drug events. Pharmacist-led ASPs, focusing on urine cultures and follow-up for UTIs, presents an effective method for ASP/outpatient pharmacy service expansion. Currently, a pharmacist-created UTI prescribing orderset, SmartRx, is available to improve guideline-concordant prescribing. However, limited data exists on the appropriateness/timeliness of antimicrobial prescribing and urine culture follow-up practices.

METHODOLOGY: This was a multi-site, retrospective observational study examining antimicrobials prescribed and timeliness of follow-up after a positive urine culture in patients discharged from ACC clinics. Included members were discharged between January 1, 2019 to December 31, 2019 with a positive urine culture. Excluded were ≤ 18 years-old and/or were admitted to the hospital or transferred to another institution. JIRA reports and electronic medical records were utilized to evaluate prescribing patterns, follow-ups, and timeliness of patient outreach.

RESULTS: Overall, 1,418 KPGA members were evaluated and 1,309 patients were prescribed empiric antibiotic therapy for a UTI. Only 41 encounters (3.13%) utilized SmartRx at point of prescribing. The most prescribed empiric agent was ciprofloxacin, followed by nitrofurantoin and cephalexin. Average timeframe for discharge to culture result, culture result to closed encounter, and culture result to patient contact (if needed) was 59 hours, 44 hours, and 7.65 hours, respectively.

CONCLUSIONS: Currently, ACCs are overutilizing non-preferred first-line agents for the treatment of UTIs and inefficiencies in patient outreach exist following discharge. These contributes to justification for increased ASP efforts in our ACCs and pharmacist involvement. Possible optimization includes encouraging SmartRx utilization, expanding provider knowledge on first-line UTI agents, and improving workflow deficiencies to decrease time to action on culture results.

PINNED

9:30am – 9:45am

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Presenters: Please view and evaluate as many abstracts as you would like. To do so,

- click on the abstract title you would like to view
- Check the radio button to add to your SCHED
- Read over the presenter's profile and view the abstract
- Watch the recorded presentation
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APRIL 29 • THURSDAY

S Welcome

TBA

PINNED

8:00am – 8:30am

Presenters: Deborah Hobbs

S Clinician Well-Being and Resilience

TBA

PINNED

8:30am – 9:30am

Presenters: Paul C. Walker, Pharm.D., FASHP

Please click the videostream link to attend Dr. Walker's presentation.

PINNED
9:30am – 3:00pm

S **Live Q&A**

TBA

Everyone: click the yellow "Open Zoom" button to enter the Zoom meeting. Once in the meeting, you may move to breakout rooms.

Presenters: enter the breakout room based on the time and room your presentation is listed under on the schedule. For example, if your presentation is listed as 04/20/2021 9:30-9:35 in Room A, you would go to breakout room A for session I. During the times you are not assigned you may enter breakout rooms of those you reviewed to ask questions.

Moderators and evaluators: enter the breakout room you were assigned to during your assigned session. Be sure to complete a structured evaluation for each presenter in the session you are assigned. Link to the evaluation is below. During unassigned times, enter the breakout rooms of others you reviewed, ask questions if needed, and complete a structured evaluation for them as well.

Moderators: You will be made a co-host of your room in your session. Please keep an eye on time. Each presenter has 5 mins for Q&A. Give a time warning when the limit is approaching. There is an additional 5 minutes built into each session as a buffer in case presenters go a little over their time. Try to keep everyone as close to their timeframe as possible. Also, if someone has background noise that is disruptive, you have the ability to mute anyone in the room.

Evaluators: Please have 1-2 questions ready for each presenter to keep the session moving along.

2021 Southeastern Residency Conference - Virtual

- A** Administration (ADM) **B** Ambulatory Care (AMB) **C** Cardiology (CAR) **Y** Community Pharmacy (CP)
- R** Critical Care/Emergency Medicine (CCM) **G** Geriatrics (GER) **I** Infectious Disease (ID) **L** Internal Medicine (IM)
- M** Medication Safety (MES) **N** Neurology (NEU) **O** Oncology (ONC) **P** Psychiatric Pharmacy (PSY) **S** SERC
- T** Transitional Care (TC) **1** Transplant (TRP)

APRIL 20 • TUESDAY

PINNED 9:00am – 9:15am	S Evaluating Starts 4/21/2021 You can add abstracts to your schedule today, however please remember today is still an editing day for our presenters!! Evaluations do not start until tomorrow morning at 8am!	Room A
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9:45am – 9:50am	A Evaluation of Pharmacy Technician Leadership Training through a National Survey and Focus Group <i>Presenters: Behren Ketchum</i> TITLE: Evaluation of Pharmacy Technician Leadership Training through a National Survey and Focus Group AUTHORS: Behren Ketchum, Benjamin Coles, Linda Logan OBJECTIVE: Describe the current state of training for pharmacy technician leaders and identify the need for additional training or qualifications for leadership roles. SELF ASSESSMENT QUESTION: Certified pharmacy technicians generally feel prepared upon entering a leadership position. True/False BACKGROUND: As new pharmacy practice models deploy pharmacists into direct patient care services, advancement of certified pharmacy technicians (CPhT) is essential. Although avenues exist for CPhT skill-based advancement, opportunities for leadership training are lacking. The objective of this study is to evaluate available and/or received training for CPhT leaders and to determine the need for additional training or qualifications for technicians pursuing leadership roles. METHODOLOGY: Through collaboration with the Pharmacy Technician Certification Board (PTCB), an internet-based survey was emailed to a random sample of 10,000 active CPhTs. A self-selected subset of participants were scheduled for focus groups. Internet survey was analyzed using descriptive statistics. Focus group data will be analyzed through thematic analysis. RESULTS: As 30% of pharmacy technicians hold leadership roles, a 100% response rate from this group would be 3,000 CPhTs. The survey achieved a 15% response rate (N=443) with 75% of respondents completing the survey. Few received formal leadership training prior to (25%) or after (42%) accepting a leadership position. Type of leadership training was often reported as on-the-job training, certifications, life experience, and mentoring, while advanced degrees or leadership seminars/development programs were rare. Despite feeling prepared to enter a leadership role (73%), the majority felt they could benefit from leadership training (80%) and credentialing would motivate them to pursue higher level positions (78%). Focus groups are ongoing. CONCLUSIONS: Survey results indicate a possible lack of accessible leadership training programs. A national training program specific to CPhTs pursuing administrative roles may benefit CPhTs and institutions.	Room G
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B Impact of Clinical Pharmacists on Type 2 Diabetes Mellitus outcomes in the primary care setting before and during the Public Health Emergency surrounding COVID-19.

Room K

Presenters: Chelsea Orvin

TITLE: Impact of Clinical Pharmacists on Type 2 Diabetes Mellitus outcomes in the primary care setting before and during the Public Health Emergency surrounding COVID-19.

AUTHORS: Chelsea Orvin, Caleb Rich, Ashley Woodhouse, Joseph Crosby, Chelsea Keedy

OBJECTIVE: Identify and compare the overall change in T2DM outcomes prior to the pandemic versus during the pandemic.

SELF ASSESSMENT QUESTION: What is one way pharmacists can sustain telephonic visits for disease state management in the ambulatory care setting when Public Health Emergency (PHE) waivers expire?

BACKGROUND: To determine the impact of ambulatory care pharmacists on Type 2 Diabetes Mellitus outcomes prior to and during the COVID-19 pandemic.

METHODOLOGY: A computer-generated list identified patients whose Type 2 Diabetes Mellitus (T2DM) was managed by clinical pharmacists from August 2019 to October 2020. Patient data prior to the pandemic was compared to outcomes during the pandemic, as pharmacists started regularly utilizing Remote Patient Monitoring (RPM) services during the pandemic to lessen in-person visits. Data collected included comorbidities, change in hemoglobin A1C, diabetes medication history and adherence, and statin therapy adherence. Percentage of HEDIS and MIPS measures met and billing code frequencies were also assessed.

RESULTS: There were 91 patients who had their T2DM managed by a clinical pharmacist from August 2019-October 2020 meeting the inclusion criteria of initial A1C > 8%. In the pre-pandemic group, the average 3 and 6 month A1C reduction was 1.3% and 1.2%, respectively. The average 3 and 6 month A1C reduction in the during-pandemic group was 2% and 2.2%, respectively. The percentage of patients appropriately initiated or maintained on a statin in the pre-pandemic group was 96.2% and 82.6 % in the during-pandemic group.

CONCLUSIONS: Data demonstrates the opportunity for pharmacists to maintain and improve clinical outcomes related to T2DM despite the ongoing COVID19 pandemic through implementation of telephonic monitoring. While services such as Remote Patient Monitoring (RPM) were able to be utilized by pharmacists prior to the Public Health Emergency (PHE), the pandemic presents an ongoing need to explore opportunities for practice sustainment.

C Prophylactic Enoxaparin Dosing Regimen in Morbidly Obese Patients

Room E

Presenters: Rachel Rusk

TITLE: Prophylactic Enoxaparin Dosing Regimen in Morbidly Obese Patients

AUTHORS: Rachel Rusk, William Guynn, Joshua Settle

OBJECTIVE: Identify a potential dosing regimen for an obese patient that requires venous thromboembolism prophylaxis with enoxaparin.

SELF ASSESSMENT QUESTION: What is the goal anti-Xa level for an obese patient for prophylactic enoxaparin dosing?

BACKGROUND: Enoxaparin is standard therapy for venous thromboembolism (VTE) prophylaxis in hospitalized patients. Enoxaparin's distribution is weight-based, which may increase VTE risk in obese patients using standard regimens. The literature suggests a twice daily regimen of enoxaparin in patients with a body mass index (BMI) greater than or equal to 40kg/m². The purpose of this study is to implement and assess a twice daily dosing regimen for enoxaparin prophylaxis in patients with a BMI greater than or equal to 40kg/m².

METHODOLOGY: Patients included were 19 years of age or older, had a BMI of 40kg/m² or greater, and received enoxaparin for VTE prophylaxis. Creatinine clearance was 30mL/min or greater. Patients were excluded if they were pregnant or had contraindications to enoxaparin. The dose was adjusted to enoxaparin 40mg twice daily if the BMI was greater than or equal to 40kg/m². Peak anti-factor Xa levels were measured four to six hours after the third dose. The dose was increased or decreased by 10 mg for subtherapeutic and suprathereapeutic levels respectively.

RESULTS: Sixty five patients were included in this study. Seventy five percent of patients had a therapeutic initial anti-xa level. There were 4 occurrences of suprathereapeutic initial levels and 10 occurrences of subtherapeutic initial levels. There were two occurrences of bleeding (hematuria & minor epistaxis) and 4 patients required transition to treatment dose enoxaparin: COVID-19, new onset atrial fibrillation, probable pulmonary embolism, and internal jugular vein thrombosis. Twelve other patients were excluded from the study due to being discharged prior to follow up.

CONCLUSIONS: A majority of the patients enrolled in this study had a therapeutic initial anti-xa level, with little evidence of bleeding or thrombosis. This demonstrates that the proposed regimen is a safe and effective method for dosing prophylactic enoxaparin in this patient population.

Video presentation link: <https://vimeo.com/539220929>

R EVALUATION OF PROTON-PUMP INHIBITOR (PPI) DOSING FOR GASTROINTESTINAL BLEED (GIB) PROPHYLAXIS IN EXTRACORPOREAL MEMBRANE OXYGENATION

Room B

Presenters: Racheal Bailey

TITLE: EVALUATION OF PROTON-PUMP INHIBITOR (PPI) DOSING FOR GASTROINTESTINAL BLEED (GIB) PROPHYLAXIS IN EXTRACORPOREAL MEMBRANE OXYGENATION

AUTHORS: Racheal Bailey; Jeannie Watson; Matt Bibb

OBJECTIVE: Describe differences between GIB prophylaxis modality in ECMO patients.

SELF ASSESSMENT QUESTION: Does twice daily PPI dosing decrease the rate of GIB in patients undergoing ECMO?

BACKGROUND: Bleeding is the most frequent and serious complication associated with ECMO. GIB has been identified in approximately 8% of ECMO patients at time of death. There are no current guidelines that comment on GIB prophylaxis specifically in ECMO patients. The purpose of this study is to evaluate the efficacy of PPIs for the prevention of GIB in patients undergoing ECMO.

METHODOLOGY: This study is a retrospective chart review of adult patients who were on ECMO between January 1, 2019 and July 31, 2020. This study includes a single center (ASTW). Data will be analyzed to assess differences in PPI dosing and GIB. Secondary outcomes include the rate of GIB and mortality.

RESULTS: 76 patients were included in this study with 47 patients receiving pantoprazole twice daily. 5 patients had a GIB while on ECMO therapy, 6.6%, with 4 GIBs occurring in the pantoprazole BID group. Patients in the pantoprazole twice daily group were on ECMO significantly longer ($p=0.006$) than all other patients. Overall mortality was 50% in the ECMO population.

CONCLUSIONS: There was no significant difference in GIB between pantoprazole BID and the other modes of prophylaxis. In ECMO patients at ASTW, incidence of GIB at was 6.6% and mortality was 50%. The majority of GIBs were in the pantoprazole twice daily group; this was not statistically significant. The pantoprazole BID group made up the majority of the study population (61.8%) and was on ECMO significantly longer than the rest of the population. Further research is needed to determine the best mode of GIB prophylaxis in ECMO patients.

R Impact of Anticoagulation Targets on Bleeding in Venovenous Extracorporeal Membrane Oxygenation

Room C

Presenters: Jessica Cercone

TITLE: Impact of Anticoagulation Targets on Bleeding in Venovenous Extracorporeal Membrane Oxygenation

AUTHORS: Jessica Cercone, Shawn Kram, Morgan Trammel, Craig Rackley, Hui-Jie Lee, James Merchant Jr., Bridgette Kram

OBJECTIVE: To describe the impact of different anticoagulation targets on bleeding complications in patients receiving venovenous extracorporeal membrane oxygenation (VV-ECMO) for acute respiratory distress syndrome (ARDS)

SELF ASSESSMENT QUESTION: Which of the following laboratory parameters may be used to monitor anticoagulation in ECMO patients?

- a. Anti Xa levels
- b. Activated clotting time (ACT)
- c. Activated partial thromboplastin time (aPTT)
- d. All of the above**

BACKGROUND: The risk of bleeding and thrombotic complications must be balanced when administering systemic anticoagulation to patients receiving ECMO. Due to lack of data supporting standardized anticoagulant monitoring, therapeutic targets may vary across institutions.

METHODOLOGY: This retrospective, single center, observational cohort study included patients 18 years and older who received VV-ECMO for ARDS from September 2013 to December 2019. Included patients received continuous infusion heparin and had at least two aPTTs resulted during heparin therapy. Patients were placed into three treatment groups based on the time of index cannulation: aPTT < 50 sec, aPTT 40-50 sec, or No Protocol group.

RESULTS: A total of 136 patients were included. There was no statistically significant difference in rates of bleeding between the three groups (26.7% vs. 34% vs. 39.3, $p=0.50$). The difference in bleeding events between groups was primarily due to a difference in the receipt of a blood transfusion. The no protocol group required a slightly increased median number of units of packed red blood cells than the < 50 and 40-50 sec groups (3 vs. 2 vs. 0.5, respectively). The percentage of aPTT values above goal was similar between groups. Rates of thrombotic events were comparable between the three groups.

CONCLUSIONS: Anticoagulation protocols targeting an aPTT of < 50 or 40-50 sec may be a safe and reasonable strategy for patients receiving VV ECMO for ARDS.

I ANALYSIS OF THE EFFECTS OF PERIOPERATIVE CULTURE OBTAINMENT ON CLINICAL OUTCOMES OF PATIENTS WITH INTRA-ABDOMINAL SOURCES OF INFECTION

Room I

Presenters: Matthew Laws

TITLE: ANALYSIS OF THE EFFECTS OF PERIOPERATIVE CULTURE OBTAINMENT ON CLINICAL OUTCOMES OF PATIENTS WITH INTRA-ABDOMINAL SOURCES OF INFECTION

AUTHORS: Matthew Laws, Sage Greenlee, Wes Wilkerson, Darrell Childress, Chris Harrison

OBJECTIVE: Describe the effect of perioperative culture obtainment on patients with a complicated intra-abdominal infection undergoing surgical intervention.

SELF ASSESSMENT QUESTION: Do perioperative cultures improve post-surgery outcomes in patients being treated for a complicated intra-abdominal infection?

BACKGROUND: Current guidelines for the treatment of complicated intra-abdominal infections recommend using pathogen directed antimicrobial therapy guided by perioperative cultures. The purpose of this study was to investigate outcomes in patients undergoing surgical intervention for an intra-abdominal infection based upon the obtainment of perioperative cultures.

METHODOLOGY: This IRB approved retrospective cohort evaluated patients diagnosed with a complicated intra-abdominal infection requiring surgical intervention between January 1, 2017 to December 31, 2019. Patients 19 – 75 years of age who were diagnosed with a complicated intra-abdominal infection requiring surgical intervention were included. The primary outcome was a composite of ≥ 10 -day length of stay, 30-day readmission, or mortality. Secondary outcomes included duration of antimicrobials, time to appropriate antimicrobials, incidence of de-escalation/escalation of antimicrobials, and composite length of stay.

RESULTS: A total of 186 patients met inclusion criteria, and 46 of the included patients had perioperative cultures obtained. The composite primary outcome revealed 36 (78.3%) patients in the culture group and 84 patients (60%) in the no culture group ($p=0.032$). In regard to secondary outcomes, the no culture group had a longer average length of stay compared to the culture group, 16.92 days vs. 13.57days ($p=0.063$). The average duration of antimicrobial therapy was found to be longer in the culture group (14.71 days) than in the no culture group (10.15 days) ($p=0.002$). Appropriate escalation/de-escalation occurred in 43% of cases, and the average time to appropriate antimicrobial initiation was 95.7 hours.

CONCLUSIONS: Patients in whom perioperative cultures were obtained during surgical intervention for a complicated intra-abdominal infection were found to have a higher likelihood of the primary composite outcome as well as longer courses of antimicrobials.

LINK TO SLIDES: https://drive.google.com/drive/folders/1-i2K8NZNRdhd_IR2sigCrLqkJ7j8lGU?usp=sharing

I Evaluation of antibiotic use in patients with gram positive bacteremia after implementation of a rapid diagnostic blood culture panel with pharmacist review

Room J

Presenters: Thomas Sessoms

TITLE: Evaluation of antibiotic use in patients with gram positive bacteremia after implementation of a rapid diagnostic blood culture panel with pharmacist review

AUTHORS: Thomas Sessoms, Toni Pate, Thomas Brown, Serina Tart

OBJECTIVE: At the conclusion of the presentation, the participant will be able to identify the benefits of BCID-2™ testing in patients with gram positive bacteremias.

SELF ASSESSMENT QUESTION: Which of the following are potential benefits of rapid diagnostic BCID-2™ testing for gram positive bacteremia? (select all that apply)

BACKGROUND: Molecular rapid diagnostic testing for blood stream infections can quickly identify organisms and reduce time to appropriate treatment. The purpose of this study is to evaluate the impact on the time to targeted therapy in patients with gram positive bacteremias after implementation of a blood culture identification panel (Biofire Blood Culture Identification Panel BCID2™) with pharmacist review.

METHODOLOGY: This retrospective, quality improvement cohort study included patients admitted at a large community hospital from December 1, 2020 to February 28, 2021 with gram positive bacteremia identified on the BCID2. Comparison of endpoints was made to a control group of patients admitted July 1, 2020 to September 30, 2020 with gram positive bacteremia prior to BCID2 testing. The primary objective was to compare time to targeted therapy with traditional testing versus time to targeted therapy with BCID-2™ testing. Secondary objectives were to compare: mean time to organism identification; hospital wide days of therapy for vancomycin, daptomycin, and linezolid; and length of stay.

PRELIMINARY RESULTS: The primary outcome was statistically significant with a mean of 89.1 vs. 44.4 hours. Time to bacteria identifiy was statistically significant with a mean of 88.5 hours vs. 30.5 hours. Length of stay was not statistically significant. The days of therapy were reduced in the post-intervention.

CONCLUSIONS: BCID-2 testing and pharmacist intervention decreases time to targeted therapy.

I Outcomes and Safety Associated with Semi-synthetic Penicillins versus Cefazolin in the Treatment of Epidural Abscess*Presenters: Carolyn Hill*

TITLE: Outcomes and Safety Associated with Semi-synthetic Penicillins versus Cefazolin in the Treatment of Epidural Abscess

AUTHORS: Carolyn Hill, Zachary Gruss, Tyler Stone, Jim Beardsley, Jim Johnson, Erin Barnes, Chris Ohl, John Williamson

OBJECTIVE: To describe and compare outcomes of SSPs versus cefazolin in the treatment of epidural abscess caused by MSSA.

SELF ASSESSMENT QUESTION: Is cefazolin associated with positive outcomes in the treatment of SEA?

BACKGROUND: Semi-synthetic penicillins (SSPs) are favored in the treatment of spinal epidural abscesses (SEA) caused by methicillin-susceptible *Staphylococcus aureus* (MSSA) because of proven efficacy and reliable concentrations achieved in cerebrospinal fluid. SSPs are known to cause adverse events, e.g. nephrotoxicity, and can be difficult to administer in the outpatient setting. Studies examining cefazolin in the treatment of MSSA bacteremia have revealed a more favorable adverse event profile, and cefazolin is easier to administer to outpatients. However, the efficacy of cefazolin in treating SEA remains unclear. This study aims to compare outcomes of SSPs versus cefazolin in the treatment of SEA caused by MSSA.METHODOLOGY: This is a single-center, retrospective, observational study at an academic tertiary care medical center. Patients ≥ 18 years old with radiographic evidence of SEA, positive culture for MSSA, and treated with SSP or cefazolin were included. The primary outcome is clinical success at 90 days after completion of antibiotic therapy. Pertinent secondary outcomes include all-cause mortality at ninety days, need for antibiotic change before end of treatment course, and incidence of adverse events.

RESULTS: In progress.

CONCLUSIONS: In progress.

Link to presentation: <https://youtu.be/7-tEV-YgkLc>**M Impact of a Bundle Approach to Reduce the Occurrence of Iatrogenic Hypoglycemia***Presenters: Nabilah Ahmed*

TITLE: Impact of a Bundle Approach to Reduce the Occurrence of Iatrogenic Hypoglycemia

AUTHORS: Nabilah Ahmed, Ryan Crossman

OBJECTIVE: This research project aims to evaluate the rate reduction of insulin-induced hypoglycemia with a targeted bundle approach when compared to historical facility and national benchmarks at a community teaching hospital.

SELF ASSESSMENT QUESTION: Did creating filtered lists to identify patients at risk of insulin-induced hypoglycemia prevent and/or reduce insulin-associated adverse events?

BACKGROUND: Insulin-induced hypoglycemia is a common adverse event at hospitals. To prevent iatrogenic hypoglycemia, it's essential to understand which patients are more susceptible during inpatient stay. One of the primary contributing factors is altered nutrition, especially patients on nothing by mouth (NPO) status. Additionally, comorbidities, being elderly, low body weight, being on other contributory medications, and total daily insulin doses (TDD) $>0.25-0.3$ units/kg/day may increase hypoglycemia risk. Previous quality improvement studies for reducing rates of hypoglycemia have found early identification and intervention, standardized protocols, dissemination of education, and multidisciplinary collaboration to be successful in reducing severe and overall hypoglycemia.

METHODOLOGY: The following filters on the electronic health record (EHR) are used as a predictive algorithm to identify patients potentially at risk of hypoglycemia:

- a. Underweight (BMI ≤ 18.5)
- b. Impaired renal (CrCl ≤ 30 mL/min)
- c. Impaired renal (CrCl $\leq 5 \times$ ULN)
- d. Nutritional status (albumin < 3.5)

Upon identification of at-risk patients, pharmacists will contact the provider to modify the insulin regimen. This study will observe if identified at-risk patients have any occurrence of hypoglycemia during their stay. The collected data will be used to determine overall reduction of hypoglycemia occurrence and the need for implementation of further bundle components.

RESULTS: In progress

CONCLUSIONS: In progress

○ **Real-world Outcomes with Liposomal Cytarabine-Daunorubicin (Vyxeos) in Therapy-Related Acute Myeloid Leukemia and Acute Myeloid Leukemia with Myelodysplasia-Related Changes** Room A

Presenters: Kristina Murphy

TITLE: Real-world Outcomes with Liposomal Cytarabine-Daunorubicin (Vyxeos) in Therapy-Related Acute Myeloid Leukemia and Acute Myeloid Leukemia with Myelodysplasia-Related Changes

AUTHORS: Kristina D. Murphy, PharmD; Colleen McCabe, PharmD, BCOP; Danielle Schlafer, PharmD, BCOP; Subir Goyal, PhD; Nikolaos Papadantonakis, MD, PhD

OBJECTIVE: To describe response rates, adverse events, and prescribing patterns of CPX-351 outside of the clinical trial setting.

SELF ASSESSMENT QUESTION: Which of the following are associated with secondary AML resulting in higher risk of relapse with standard of care 7+3? A. Older Age B. Adverse/Complex Cytogenetics C. Multidrug Resistant Phenotypes D. All of the Above

BACKGROUND: Vyxeos (CPX-351) is a liposomal formulation of cytarabine and daunorubicin designed for improved cellular uptake and preferential drug delivery to leukemia cells. CPX-351 is approved for treatment of adults with therapy-related AML (t-AML) or AML with myelodysplasia related changes (AML-MRC), two difficult-to-treat subtypes with historically poor outcomes. However, there is limited data regarding outcomes with CPX-351 outside of clinical trials, specifically patients < 60 years of age and select subgroups appearing to have inferior outcomes.

METHODOLOGY: A retrospective chart review was conducted on all adult patients who received at least one induction cycle of CPX-351 from August 1, 2017 to June 1, 2020. The primary outcome was rate of complete remission (CR) and complete remission with incomplete blood count recovery (CRi). Secondary outcomes include rate of hematologic toxicity, time to count recovery, infection rate, overall survival, and progression free survival. CR and CRi rates were analyzed for the following subgroups: patients < 60 years of age, cytogenetic risk category, prior hypomethylating agent therapy, patients who continue onto hematopoietic cell transplant after receiving CPX-351, and consolidation regimen.

RESULTS: A total of 29 patients received CPX-351 within the defined study period. Forty-eight percent of patients were < 60 years of age. Seventy-six percent were classified as having unfavorable cytogenetic risk and 31% had complex cytogenetics. Patients included also had a wide variety of molecular characteristics including FLT3 (17%), IDH (17%), and KRAS (14%) mutations. The overall remission rate was 52% with 38% achieving a complete remission. In terms of secondary outcomes, 48% received a bone marrow transplant following induction. Second inductions occurred in 31% with the majority receiving either FLAG-IDA or CPX-351. Twenty-four percent received alternative consolidation regimens with HiDAC or bone marrow transplant while 41% received CPX-351. Rates of infection remained high. The time to hematologic recovery was consistent with what was seen in clinical trials with hematologic recovery occurring between day 33 to 37.

CONCLUSIONS: Overall remission rates in this study were similar to rates described in the initial clinical trials with CPX-351. However, this study included a significant number of younger patients with unfavorable risk, prior HMA exposure, and complex cytogenetics.

Audiovisual Link: <https://youtu.be/HXI6IrdCBFE>

B Differences of pharmacist completed annual wellness visits compared to pharmacist taught resident physician visits in a family medicine clinic.

Presenters: Marina Matthews

TITLE: Pharmacist completed annual wellness visits compared to pharmacist-taught, resident physician completed visits in a family medicine clinic.

AUTHORS: Marina Matthews, PharmD; Morgan Rhodes, BCACP, BC-ADM

OBJECTIVE: Compare pharmacist-physician co-visits to resident physician visits for adherence to guidelines and completion of required components of the annual wellness visit and interventions based on current guidelines.

SELF ASSESSMENT QUESTION: What are the components of an Annual Wellness Visit?

BACKGROUND: In primary care, managing preventative services has been shown to take up to 7.4 hours per day per physician. AWVs provide an opportunity for providers to address preventative services in an office visit while being no cost to the patient. Pharmacists performing annual wellness visits provides an opportunity to reduce workload, but also provide a unique skillset to address medications and preventative services. Though AWVs have been completed since 2011, there aren't many studies comparing head-to-head outcomes of physicians to support staff who complete AWVs alongside. There is even less data in the medical resident teaching setting, where pharmacists teach residents to complete AWVs and prepare them for future practice. These pharmacist-taught annual wellness visits are important to provide an optimal learning experience for medical residents.

METHODOLOGY: This was a retrospective chart review of all patients from the Prisma Health Family Medicine Center that had a completed AWV from November 1st, 2020 to March 31st, 2021 as a part of routine care. The primary aim is to determine whether the percent of visits performed by PharmD providers that completely met the applicable guidelines is non-inferior to the percent of visits performed by physician providers that completely met the applicable guidelines. The secondary aim is to compare descriptively the percent of components performed by pharmacists that met the applicable guideline to the percent performed by resident physicians that met the same applicable guideline.

RESULTS: A total of 31 patients were included in this IRB-approved study, with 12 (39%) patients in the pharmacist visit group and 19 (61%) in the resident-physician group. Baseline characteristics were similar between groups. There was no statistical significance between groups for any guideline recommended screenings except DEXA scans (9 vs. 7, $p=0.046$). Of the vaccination recommendations, Shingles (100% v. 38.9%, $p=0.001$), Pneumococcal (100% vs. 52.6%, $p = 0.005$), and Tdap (100% v. 57.9%, $p =0.012$), were all statistically significant in being address by a pharmacist. With regards to adherence to ADA & ACC/AHA guidelines, there was no significance between groups.

CONCLUSIONS: Significantly more immunizations, and DEXA scans were addressed in pharmacist visits, compared to resident-physician visits. With regards to adherence to current ADA & ACC/AHA guidelines, there was no difference between groups. There was no statistically significant difference in overall USPSTF guideline adherence between groups. While, pharmacists trended towards completing more recommended screenings (81.3% v 50%), there was no significance between groups.

Presenters: Alexander Le

TITLE: Evaluation of direct oral anticoagulant (DOAC) utilization in a primary care setting

AUTHORS: Alexander Le, Kimberly Zitko, Laura Schalliol

OBJECTIVE: Evaluate the utilization of DOACs in a primary care setting to determine whether patients' regimens follow guidelines-based recommendations and approved FDA labeled dosing and indication.

SELF ASSESSMENT QUESTION: What roles could pharmacists play in monitoring patients on a DOAC?

BACKGROUND: Direct oral anticoagulants (DOACs) are the first-line agents for most anticoagulation situations in patients with non-valvular atrial fibrillation and venous thromboembolism. The conditions that need to be satisfied prior to initiating a DOAC, added with dosing variability and lack of frequent monitoring, leaves uncertainty regarding appropriate utilization of these agents.

METHODOLOGY: A retrospective cohort chart review was completed on patients on a prescribed DOAC agent between January and June 2020. This study was conducted at Trinity Medical Associates in Knoxville, TN.

Researchers compared patients' DOAC dosing and medical history to determine whether the patient was receiving the medication in accordance with evidence-based recommendations. Descriptive statistics were utilized for the primary objective. Fisher's exact test was used to evaluate any associations between the specific DOAC agents used and the parameters of inappropriate utilization.

RESULTS: Sixty-four patients were identified to be on a DOAC prescription actively managed at the clinic. Twelve patients (18.8%) met at least one of the parameters for inappropriate utilization. The most common parameters were inappropriate dosing (9.6%) and absence of hepatic function data (7.8%). The only parameter that showed statistically significant associations with the specific DOAC agents used was inappropriate indication ($p=0.002$).

CONCLUSIONS: Optimizing DOAC regimens remains a challenge, particularly with dosing. Reviewing pertinent lab data such as hepatic and renal function are appropriate steps that need to be taken prior to and during DOAC initiation. There is opportunity for pharmacists to impact patient care with closer monitoring of patients on a DOAC to identify medication errors, assess medication adherence, and screen for potential adverse effects.

Presentation Link (Youtube): <https://youtu.be/KXlx6ggl18g>

Presenters: Elizabeth Clegg

TITLE: Impact of implementing pharmacist-led warfarin monitoring in the inpatient setting of a rural community hospital

AUTHORS: Elizabeth Clegg, Lindsey Arthur, Connor Floyd, Jun Wu

OBJECTIVE: Describe the impact of pharmacist-led warfarin monitoring on INR values in an inpatient setting.

SELF ASSESSMENT QUESTION: What are the benefits of having pharmacist-led warfarin monitoring during hospitalization?

BACKGROUND: Maintaining therapeutic INRs in warfarin management can be challenging given the vast list of drug interactions, medical comorbidities, and dietary changes that can affect warfarin. The purpose of this study was to evaluate the impact of implementing a pharmacist-led warfarin monitoring program in a rural community hospital.

METHODOLOGY: This was a pre-post intervention study looked at the impact of pharmacist-led warfarin management comparing a three-month baseline cohort retrospectively to a three-month prospective cohort after implementation. Eligible participants consisted of adults admitted with an indication for warfarin therapy. The primary endpoint was the number of therapeutic INRs. Secondary endpoints included incidence of subtherapeutic or supratherapeutic INRs, incidence of thrombosis or bleeding, days without INR collection, and number of patients discharged with a subtherapeutic INR without appropriate outpatient bridging.

RESULTS: A total of 246 patients were screened and 216 patients were included for analysis. There were significantly more therapeutic INRs in the post-implementation cohort (28.9% v. 35%, $p=0.03$). The post-implementation cohort had fewer subtherapeutic INRs (55.4% v. 44.4%, $p=0.0003$), days without INR collection (120 v. 96, $p=0.0014$), bleeding (19.5% v. 1.9%, $p=0.0097$), and patients discharged with a subtherapeutic INR without an appropriate bridging agent (23.9% v. 5.8%, $p<0.0002$). There were however significantly more supratherapeutic INRs in the post-implementation group (13.3% v. 18.5%, $p=0.0173$), but no significant increase in INRs >5.

CONCLUSIONS: This study showed that the implementation of a pharmacist-led warfarin monitoring protocol results in an increase in therapeutic INRs. Patients who had warfarin monitoring conducted by pharmacists also had less frequent subtherapeutic INRs, incidence of bleeding, and were less likely to be discharged without an appropriate bridging agent if indicated.

<https://youtu.be/JihY3WXiv38>

Presenters: Chandler Combs

TITLE: Assessment of a clinical pharmacist-driven medication appeal process in a dermatology practice

AUTHORS: Chandler Combs, B. Kyle Hansen, Sarah Pearce, Jennifer Young, Kathy Bricker

OBJECTIVE: Describe the role of the clinic-embedded pharmacist in the process of completing appeals for prior authorization denials for prescription medications.

SELF ASSESSMENT QUESTION: What is one example of a disease state in the dermatology field where a clinic-embedded pharmacist can impact care through the appeal process?

BACKGROUND: Prior authorizations (PAs) from insurance companies are necessary for controlling medication costs and drug appropriateness. However if denied, they can be extremely burdensome for clinic staff as the appeal process is complex and lengthy. In this study, the primary objective will be to evaluate the impact of a clinical pharmacist embedded in a dermatology practice on the rate of medication appeal submission.

METHODOLOGY: This study is designed as a retrospective, single-center review of appeal determinations for adult patients at a health-system based dermatology practice. The primary outcome is the change in the rate of appeals submitted pre-implementation of a pharmacist-driven appeal process during the period of August 1st, 2018 and May 31st, 2019 and post-implementation during the period of August 1st, 2019 and May 31st, 2020. Secondary outcomes are the change in the rate of appeal approvals, time to appeal submission and number of appeals submitted.

RESULTS: 245 PA denials were included in this study. The rate of appeal submission increased by 36.8% with the addition of a clinic-embedded pharmacist in the dermatology practice (20.8% vs. 57.6%, $p < 0.001$). A reduction of 46.7 days was seen in the average time to appeal submission (67.6 days vs. 20.9 days, $p < 0.001$). The rate of appeal approval showed an increase of 17.4% with the addition of a clinic-embedded pharmacist (47.6 vs. 65%, $p = 0.05$).

CONCLUSIONS: The presence of a clinic-embedded pharmacist in a dermatology practice positively impacted the rate of appeal submission, the rate of appeal approval and time to appeal submission. The field of dermatology provides an optimal environment for the addition of pharmacy services to assist with medication access.

<https://youtu.be/xRFL5feBvko>

Presenters: Adela Lupas

Association of ACEI/ARBs use with increase in severity of disease or rate of mortality in COVID-19 patients

Adela Lupas, Matthew Schwengels, Katherine E. Bradley

Background/Purpose: Various animal models showed higher expression of angiotensin-converting enzyme-2 (ACE-2) receptor as being beneficial or harmful in COVID-19 and previous studies with angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB) use show varying results on severity outcomes in COVID-19 patients. The purpose of this study was to determine the association of ACEI/ARBs use with mortality and severity of disease among hospitalized patients with COVID-19 at a rural community hospital.

Methods: Patients admitted from February 1, 2020 to September 30, 2020 with confirmed COVID-19 infection, ≥ 18 years old, and on anti-hypertensive medications were included. Patients such as pregnant women, children, inmates or those who transferred to other facilities were excluded from the study. The primary endpoints were in-hospital mortality, ICU admission, acute respiratory distress syndrome, and new hospice care without pre-existing terminal conditions, and secondary endpoints were assessed as composite endpoints. Student's t-test was used for continuous variables and the Pearson chi-square test for categorical variables. Multivariable logistic regression analyses were done to test the primary and secondary endpoints using SAS and R version.

Results: Out of 400 patients included in the study, 274 (69%) were on ACEI/ARB at baseline. Patients in ACEI/ARB group were younger (58 vs. 62 years) and had a higher prevalence of hypertension (91.2 vs. 68.3). There was no difference in sex, BMI, other comorbidities among the groups. After adjustment of multiple covariates, there was no difference in outcomes between the groups including mortality, ICU admission, acute respiratory distress syndrome, and new hospice care without pre-existing terminal conditions.

Conclusion: Previous use of ACEI/ARB does not worsen outcomes in hospitalized COVID-19 patients.

Presentation Objective: Identify the effects of ACEI/ARB use on COVID-19 mortality and severity of disease in COVID-19 patients

Self-assessment: Which of the following outcomes showed statistical significance when adjusted for age, HTN, and CKD?

Presenters: Alex Chappell

TITLE: Evaluation of Lactated Ringer's versus 0.9% Sodium Chloride in Diabetic Ketoacidosis

AUTHORS: Alex Chappell and Michael Simpson

OBJECTIVE: Review hypothetical benefits of balanced crystalloids over normal saline for fluid resuscitation in diabetic ketoacidosis and discuss the findings of this research.

SELF ASSESSMENT QUESTION: What benefits might be associated with fluid resuscitation with Lactated Ringer's in diabetic ketoacidosis and what might be challenges to using this fluid in practice?

BACKGROUND: Normal saline is the standard of care for fluid resuscitation in diabetic ketoacidosis. Large volumes of normal saline can induce a hyperchloremic metabolic acidosis which may exacerbate the acidosis. Buffered crystalloids have an alkalinizing effect and may reduce time to resolution of diabetic ketoacidosis. The purpose of this research was to evaluate the effect of choice of crystalloid, either Lactated Ringer's or 0.9% normal saline, on relevant clinical outcomes in diabetic ketoacidosis.

METHODOLOGY: This is a retrospective study comparing a standard of care group that received fluid resuscitation with normal saline and an experimental group that received Lactated Ringer's. Providers were educated on benefits and risks of Lactated Ringer's resuscitation in diabetic ketoacidosis and clinical pharmacists were involved in ordering the fluids after consultation with the provider. Eligible patients include those > 18 presenting with a diagnosis of diabetic ketoacidosis. Exclusion criteria include receipt of sodium bicarbonate or >2L of non-study fluid. Retrospective chart review was conducted to gather baseline demographic data including age, sex, medical history as well as relevant admission data including labs and medication orders.

RESULTS: In progress.

CONCLUSIONS: There have been many unforeseen challenges associated with this research including provider resistance to Lactated Ringer's in patients with hyperkalemia and overall poor adoption into practice at our site. Many patients with diabetic ketoacidosis present with hyperkalemia secondary to acidosis and hemoconcentration from osmotic diuresis. Hyperkalemia may present a barrier to the adoption of Lactated Ringer's as standard of care in diabetic ketoacidosis. More education and data about the risk, or lack thereof, for worsening hyperkalemia with Lactated Ringer's is needed.

Presenters: Megan Harlow

TITLE: Impact of continuous sedative selection on burn patient fluid resuscitation requirement

AUTHORS: Megan Harlow, Doug Wylie, Tyson Kilpatrick, Jan Jansen

OBJECTIVE: Explain the impact of sedative choice on fluid resuscitation in burn patients.

SELF ASSESSMENT QUESTION: True or False: This study found that use of midazolam was associated with a higher rate of delirium.

BACKGROUND: Patients that sustain severe burns (over 20% total body surface area) experience extensive capillary leakage. After appropriate resuscitation, this leakage improves within 18-24 hours and the need for fluid resuscitation declines. However, there is morbidity associated with both under and over resuscitation. Patients may also require sedation during this time. The impact of sedation on fluid requirements in this patient population is currently unknown. This study aims to determine if using midazolam for sedation reduces intravenous fluid requirements compared to patients receiving propofol therapy.

METHODOLOGY: Retrospective chart review was performed on patients ≥ 18 years old with severe burns who received sedation with midazolam or propofol for continuous sedation during the initial fluid resuscitation phase of their treatment. Patients were excluded if they received both propofol and midazolam simultaneously or expired in less than 48 hours. Fluid requirements were recorded over the first 48 hours.

RESULTS: 84 patients were included in the study. The total 48h fluids administered was 6.1 ± 2.9 mL/kg/TBSA in patients with no exposure to propofol compared to 6.0 ± 3.2 in patients exposed ($p=0.821$). The patients with no exposure to propofol required fewer colloid fluids in the first 48h compared to those exposed (0.4 ± 0.3 vs 0.7 ± 0.9 mL/kg/TBSA respectively, $p=0.015$). Midazolam use was associated with a higher rate of delirium ($p=0.011$), but not with a higher amount of acute respiratory distress syndrome ($p=0.011$).

CONCLUSIONS: Midazolam use did not impact the total amount of fluid administered in the first 48h of hospitalization but was associated with a reduction in the total volume of colloid fluid administered. Midazolam use was associated with a higher rate of delirium.

Video Link: <https://youtu.be/NeJ8IILPZr8>

I **Evaluation and Assessment of Antimicrobial Therapy Duration in Patients Discharged on Antibiotics for at the Atlanta VA Medical Center (AVAMC)** Room I

Presenters: Lucy Yang

TITLE: Evaluation and Assessment of Antimicrobial Therapy Duration in Patients Discharged on Antibiotics for at the Atlanta VA Medical Center (AVAMC)

AUTHORS: Lucy Yang, Amara Fazal, Lauren Epstein, Robert Gaynes, and Tiffany Goolsby

OBJECTIVE: Determine excess number of days of antibiotics prescribed at discharge

SELF ASSESSMENT QUESTION: T/F: Antibiotics are commonly overprescribed at discharge?

BACKGROUND: The goal of antibiotic stewardship programs (ASP) is to improve clinical outcomes and minimize harm. Despite widespread implementation of ASPs in the acute care setting, many antibiotics prescribed are completed after hospital discharge. Several retrospective studies demonstrate antibiotics prescribed at discharge result in an excess duration of therapy, which increases risk of acquiring multi-drug resistant organisms and leads to antibiotic associated adverse reactions. Therefore, preventing unnecessary antibiotic use is essential in improving patient care. Our goal was to assess total duration of antibiotics including both inpatient and outpatient durations for common infections to inform best practices for the AVAMC ASP.

METHODOLOGY: Patients included were hospitalized during January 1, 2019 through February 29, 2020, who were prescribed antibiotics on discharge indicated for urinary tract infections (UTI) (cystitis/pyelonephritis), pneumonia and skin and soft tissue infection (SSTI) (mild/moderate) using IDC-10 codes. A standardized chart abstraction tool and individual charts were reviewed for antibiotic durations. Data collection included patient demographics, diagnosis, duration of hospitalization, type and duration of antibiotic, type of prescriber, and admissions team.

RESULTS: We reviewed 282 patients and 113 met inclusion criteria, 32 UTIs, 39 pneumonia and 42 SSTI; Across all three categories, 16 UTI, 20 pneumonia and 21 SSTIs received prolonged courses of antibiotics with a median duration of 3 days for UTI, 2 for pneumonia and 3 for SSTIs.

Patients commonly received prolonged duration of antibiotics for SSTIs. Higher proportion of patients treated by hospitalists received prolonged courses compared to patients assigned to training teams for all indications.

CONCLUSIONS: Hospitalized patients at Atlanta VAMC diagnosed with UTI, pneumonia or SSTIs often received prolonged course of antibiotics prescribed following hospital discharge. Further analysis is needed to determine indications for prolonged antibiotic courses and areas for improvement.

Presentation: <https://youtu.be/AdU01RbVso>

I **Impact of Probiotics on the Development of Clostridioides difficile Infection in Patients Receiving Fluoroquinolones** Room H

Presenters: Mary Sheffield

TITLE: Impact of Probiotics on the Development of Clostridioides difficile Infection in Patients Receiving Fluoroquinolones

AUTHORS: Mary E. Sheffield, Bruce M. Jones, Blake Terrell, Jamie L. Wagner, Christopher M. Bland

OBJECTIVE: Identify the impact of probiotic administration on the development of primary CDI among patients receiving high-risk antibiotics.

SELF ASSESSMENT QUESTION: Which antibiotics have the highest associated risk of CDI?

BACKGROUND: Fluoroquinolones (FQ) are associated with an increased risk of Clostridioides difficile infection (CDI) due to disruption of normal gastrointestinal flora. Probiotic supplementation has been shown to reduce risk of antibiotic-associated diarrhea and primary CDI. The purpose of this study was to evaluate impact of probiotics on the development of primary CDI among patients receiving fluoroquinolones.

METHODOLOGY: Retrospective analysis of adult patients admitted from August 1, 2018 to August 31, 2020, that received ≥ 3 days of definitive monotherapy with levofloxacin or ciprofloxacin within 72 hours of admission. The probiotic group required ≥ 1 dose of probiotics during antibiotic treatment. Patients were randomized to include 100 patients in each group. Patients with a history of CDI, antibiotic use within 90-days of hospitalization, or co-administration of systemic antibiotics for >24 hours during definitive therapy were excluded. Primary outcome was incidence of primary CDI. Key secondary outcomes include rates of diagnostic stool testing performed and non-CDI gastrointestinal-related side effects.

RESULTS: Patients on FQ who received probiotics had fewer overall cases of CDI compared to those who did not (0% vs. 3%, $p=0.246$). Patients on FQ who received probiotics had statistically significantly fewer stool tests performed compared to those who did not receive probiotics (4% vs. 16%, $p=0.005$). Non-CDI gastrointestinal-related side effects occurred in 30% and 35% of patients receiving FQ with and without probiotics, respectively.

CONCLUSIONS: Rates of CDI in patients receiving a FQ without probiotics were consistent with current literature. Probiotic use was associated with a statistically significantly lower incidence of C. difficile stool tests performed.

Further research is warranted to optimize probiotic prescribing in high-risk patients, such as patients receiving FQ.

<https://youtu.be/DO59c8MCASc>

Presenters: Matthew Westling

TITLE: Non-Steroidal Anti-inflammatory Drug (NSAID) Use in Patients with Sleeve Gastrectomy

AUTHORS: Matthew Westling

ACPE OBJECTIVE: Identify guideline recommendations for NSAID use in bariatric surgery patients.

SELF ASSESSMENT QUESTION: What is the guideline recommendation for NSAID use in bariatric surgery patients?

BACKGROUND: The purpose of this project was to describe the use of prescription NSAIDs in sleeve gastrectomy patients and assess the impact of prescription NSAIDs on endoscopic findings and reported gastric symptoms.

METHODOLOGY: Retrospective chart review on sleeve gastrectomy patients aged 18-90 years who did not have a conversion between bariatric procedures. Patient data included post-operative NSAID prescriptions, EGD findings, and reported gastric symptoms. NSAID prescriptions and patient specific NSAID use were described along pre-defined categories. The association between receiving NSAID prescriptions and the frequency of reported gastric symptoms was analyzed using a Fischer's exact test. Statistical significance was defined as p-value 0.05) or reporting gastric symptoms ($p > 0.05$).

RESULTS: There were 190 post-operative NSAID prescriptions were distributed across 34% ($n=33$) of patients. Most prescriptions were medium dosing category (63.7% $n = 121$). High dose NSAID prescriptions had the longest day-supply on average ($\bar{x} = 62.7$ days). Average patient exposure to NSAID prescriptions was 245.3 days. Average time from gastric sleeve until first NSAID prescription was 521 days. There was no association between receiving an NSAID prescription and reporting new or worsening gastric symptoms ($p > 0.05$).

CONCLUSIONS: Current practice guidelines recommend limiting the use of NSAIDs after sleeve gastrectomy. We found about one-third of patients that underwent sleeve gastrectomy were receiving some form of post-operative NSAID. However, receiving NSAID prescriptions were not associated with reporting new or worsening gastric symptoms.

O **Evaluation of initial empiric dose reduction of tyrosine kinase inhibitors for patients with metastatic renal cell carcinoma**

Presenters: Tia Stitt

TITLE: Evaluation of initial empiric dose reduction of tyrosine kinase inhibitors for patients with metastatic renal cell carcinoma

AUTHORS: Tia Stitt, Katherine Saunders, Brooke Cottle, Amber Clemmons

OBJECTIVE: Evaluate how many patients with mRCC were initiated on reduced dose TKIs and if they experienced differences in clinical outcomes including overall survival, duration of therapy, frequency of toxicities leading to dose modification/therapy discontinuation.

SELF ASSESSMENT QUESTION: What was the most common justification for intervention(s) made for a patient's TKI therapy?

BACKGROUND: Tyrosine kinase inhibitors (TKIs) are routinely used as treatments for patients with metastatic renal cell carcinoma (mRCC). Adverse events occur frequently. Studies supporting initial lower doses of TKIs in mRCC are limited. Despite limited evidence, empiric dose reductions of TKIs for mRCC are seen in clinical practice at our institution. The purpose of this study was to evaluate the impact of starting TKI dose in patients with mRCC on various clinical outcomes.

METHODOLOGY: This was a retrospective chart review of patients with mRCC who were prescribed a TKI from January 1, 2015 - June 30, 2020 at the Georgia Cancer Center-Laney Walker campus. Eligible patients were ≥ 18 years and prescribed sunitinib, pazopanib, cabozantinib, levantinib plus everolimus, everolimus, or axitinib. Patients were divided into groups based on initial dose of TKI: full-FDA labeled dose versus reduced. Primary objective was percentage of patients who received reduced-dose TKI. Secondary objectives included evaluating the impact of initial reduced dosing of TKIs on duration of therapy, further dose reductions or interruptions, and overall survival, as well as evaluating if initial reduced dosing is associated with decreased frequency of toxicities and/or number of toxicities leading to an intervention. Patients with second or third line TKI for mRCC were evaluated descriptively for the same outcomes.

RESULTS: Overall, 63 patient charts were reviewed and only 42 patients met criteria to be included. There were 28 (66.7%) in the reduced starting dose group and 14 (33.3%) in the full starting dose group. As for the secondary outcomes, no differences were observed.

CONCLUSIONS: Further studies are needed to determine if reduced starting dose of TKIs in mRCC will allow for better tolerability without compromising efficacy.

YouTube link to AV video: <https://youtu.be/am0JqIFbOwg>

Presenters: Taylor McGhee

TITLE: Administration of PHQ-9 screening in an employee sponsored diabetes program

AUTHORS: Taylor McGhee, PharmD, Tacorya Adewodu, PharmD, BCACP, CPP, Danielle Raymer, PharmD, BCACP, CPP, Danielle Baker, PharmD, MS, BCPS, Virginia Yoder, PharmD, BCPS, BCACP, CDE, CPP, Beth Williams, PharmD, Pharmacy System Director, and Andrew Hwang, PharmD, BCPS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the processes for implementing a PHQ9 survey into an ambulatory care pharmacist's workflow.

SELF ASSESSMENT QUESTION: How does mental health impact patients with diabetes and how can pharmacists make an impact?

BACKGROUND: The primary objective of this study was to determine the capture rate of referrals for evaluation of undiagnosed or suboptimal treatment for depression in patients in an employee sponsored diabetes program. Characteristics of patients within each of the PHQ-9 groupings will also be assessed to evaluate where the largest need for care can be made. The evaluation of mental health in patients diagnosed with chronic diseases, such as diabetes, is imperative to positive outcomes. This study will aim to provide insight on how a screening tool implemented in diabetes visits with a pharmacist can help to close the depression care gap which may lead to improved outcomes for diabetes and depression.

METHODOLOGY: This retrospective, chart review study includes patients with diabetes who are enrolled in the Healthy Outcomes Partnership for Employees (HOPE) Program at Wake Forest Baptist Medical Center Pharmacy Care Clinic locations. Patients are included in the study if they have an in clinic or phone diabetes visit and receive a PHQ-9 questionnaire from October 1, 2020 to November 30, 2020. Data will be collected following the two month period. The primary endpoint will measure the proportion of patients with a PHQ-9 score indicative of depression. Secondary endpoints will measure the proportion of patients with a PHQ-9 score within each grouping of mild, moderate, moderate-severe, and severe depression; proportion of patients on treatment for depression who scored >10 points; and the number of prescriptions the patients were on for diabetes management. Exploratory endpoints will measure the types of interventions after pharmacist escalation of care and the baseline characteristics of patients within each PHQ-9 grouping.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Caitlin G Brown

TITLE: A comparison of vaccination rates to national standards in pharmacist managed patients with type 2 diabetes mellitus

AUTHORS: Caitlin Brown, Tara Koehler, Meredith Lopez

OBJECTIVE: Describe pharmacists' impact on vaccination rates.

SELF ASSESSMENT QUESTION: Pharmacist-managed diabetic patients surpassed the national goals and averages for which vaccines?

BACKGROUND: Determine the differences in vaccination rates for patients with type 2 diabetes mellitus managed by an outpatient family medicine pharmacist compared to national standards and averages by HealthyPeople 2020 and CDC.

METHODOLOGY: This retrospective, cross-sectional chart review examined if patients received any hepatitis B or PPSV23 vaccinations prior to September 2, 2020, and if they received an influenza vaccine within the last calendar year. Established patients of the outpatient family medicine clinical pharmacist as of September 1, 2020, referred to outpatient family medicine clinical pharmacist for type 2 diabetes mellitus management, diagnosis of type 2 diabetes mellitus, and age 18 to 64 were included. Exclusion criteria consists of diagnosis of type 1 diabetes mellitus, pregnancy, or 65 years of age and older.

RESULTS: 200 patients were screened for inclusion and final sample size was 141. Pharmacist-managed patients had higher rates of vaccination for PPSV23 (87.2%) and hepatitis B (41%) than the HealthyPeople2020 goals and the CDC national average. Influenza rates (61%) were lower when compared to HealthyPeople 2020 goals and not significantly different from the CDC national average. There were no statistically significant associations of health disparities with influenza vaccination rate. For every one-year increase in pharmacist management, subjects were less likely to get a hepatitis B vaccine. For every one-year increase in pharmacist management, subjects were more likely to get a PPSV23 vaccine.

CONCLUSIONS: Due to sample size, correlation between pharmacist management and vaccination rates could not be established. More research utilizing a larger sample size and examining reasons for vaccine refusal should be conducted to further understand the pharmacist role in vaccination status.

LINK: https://youtu.be/94WRd01_MXw

Presenters: Paul Dossett

TITLE: Assessing the impact of community pharmacists on diabetes knowledge, hemoglobin A1c, and cholesterol in patients with prediabetes and patients with diabetes

AUTHORS: Paul Dossett, Paige Brockington, Jennifer Elliott, Sharon Sherrer, Kevin Philippart

OBJECTIVE: Identify community pharmacists' impact on diabetes knowledge retention and overall patient outcomes

SELF ASSESSMENT QUESTION: What is a validated tool that can assess a patient's knowledge of diabetes?

BACKGROUND: The Center for Disease Control reports crude estimates of 34.2 million people in the United States had diabetes and that 88 million people are at an increased risk of being diagnosed with diabetes in 2018.

Pharmacologic agents have been the front runner for managing this disease state; however, recently more focus has been placed on disease state education and living a healthy lifestyle. The purpose of this study is to evaluate the impact community pharmacists have on patient knowledge retention, hemoglobin A1c, lipid profile, and BMI using a validated knowledge assessment tool.

METHODOLOGY: This is a prospective cohort study of patients with prediabetes and patients with diabetes at an independent pharmacy. This study will integrate aspects of knowledge retention in patients currently diagnosed or at risk for diabetes. Once patients meet inclusion criteria, patients will sign the informed consent document and be evaluated using the Diabetes Knowledge Test (DKT2) for baseline knowledge. The patient will be educated using a brief standardized education tool. Once the patient is educated, the patient will be weighed, measured, and the BMI will be calculated. Once the initial measurements are completed, the patient's hemoglobin A1c and Cholesterol (TC, HDL, LDL, and TG) will be obtained using point of care (POC) testing devices. The DKT2 will be used again to assess their post-education knowledge. At months 3, 6, and 9 the patient will repeat the DKT2, POC testing, BMI, and waist circumference measurements. Throughout the 9 months, adherence to statin therapy and therapy changes in antihyperglycemic agents will be documented.

RESULTS: In progress

CONCLUSIONS: In progress

YOUTUBE LINK TO PRESENTATION: <https://youtu.be/DJ-SJpYn--c>

Presenters: Elaina Etter

TITLE: Atypical Antipsychotic Use Following Severe Traumatic Injury

AUTHORS: Elaina Etter, Hannah X. Leschorn, Emily A. Durr

OBJECTIVE: Identify patient characteristics that increase the likelihood of receiving an atypical antipsychotic following severe traumatic injury.

SELF ASSESSMENT QUESTION: Which outcomes differed significantly between patients who received an atypical antipsychotic versus those who did not?

BACKGROUND: Critically ill patients commonly experience delirium and agitation as a manifestation of acute brain dysfunction. Patients who experience delirium are at a higher risk for increased length of stay, cognitive impairment, and death. Post-traumatic agitation is a subset of delirium that is frequently managed with atypical antipsychotics, despite limited evidence supporting their use.

METHODOLOGY: A single-center, retrospective cohort study was conducted on patients admitted following traumatic injury from January 1, 2019 through April 30, 2019. Patients were included if they were admitted to the intensive care unit (ICU) with an injury severity score (ISS) of 15 or greater and a minimum hospital length of stay of 5 days.

Exclusion criteria included baseline cognitive deficits (stroke or dementia) or an antipsychotic home medication. The primary objective was to evaluate the percent of admitted patients prescribed quetiapine, olanzapine, or ziprasidone.

RESULTS: Within this cohort, 229 patients met inclusion criteria, and 54 patients (24%) received a new-start atypical antipsychotic. In comparison to those who did not receive an atypical antipsychotic, patients tended to be younger (median 31 vs. 46 years, $p=0.032$) with higher rates of penetrating trauma (33.3% vs. 20.0%, $p=0.042$), predominantly driven by high rates of gunshot wounds in the overall population (31.5% vs. 18.3%, $p=0.039$). Patients who received an antipsychotic presented with a lower median GCS (12 vs. 15, $p<0.001$) and higher rates of urine drug screens (46.3% vs. 29.7%, $p=0.024$), with higher rates of positive drug screens (42.6% vs. 20.6%, $p<0.001$).

LINK: <https://drive.google.com/file/d/1ddJ-INecbgCy8EtJm3ZO9ehHheobjwYH/view?usp=sharing>

R Evaluation of the Role and Impact of Emergency Medicine Clinical Pharmacists (EMCPs) in the Post-Discharge Culture Review Process

Room D

Presenters: Fenan Woldai

TITLE: Evaluation of the Role and Impact of Emergency Medicine Clinical Pharmacists (EMCPs) in the Post-Discharge Culture Review Process

AUTHORS: Fenan Woldai, Nirali Naik, Fitsum Teferi

OBJECTIVE: Identify the types and frequency of interventions that were made by the EMCPs during the culture review process.

SELF ASSESSMENT QUESTION: Which types of interventions did the EMCPs have the most impact on during the culture review process?

BACKGROUND: The purpose of this study was to evaluate the role and impact of EMCPs in the follow-up culture review (FCR) process for patients discharged from a community hospital emergency department (ED). The results will be used to explore expansion of the EMCP's role in the FCR by developing an ED collaborative practice agreement.

METHODOLOGY: This was a single center, prospective, descriptive study of adult patients discharged from the ED who had a positive urine, sexually transmitted disease, throat swab, and/or wound culture post-discharge from October 2020 through December 2020. Patients were identified by a daily positive culture report. Culture re-sults were transcribed by staff to a culture callback form. The advanced practice providers (APPs) re-viewed the form and made initial recommendations. The EMCP reviewed the form along with the APP's recommendations and assessed the need for additional intervention(s). If additional intervention was required, the EMCP sought physician approval.

RESULTS: In progress.

CONCLUSIONS: In progress.

R Impact of Early Sedative Medication Choices for Ventilated Patients in the Emergency Department

Room B

Presenters: David Oliver

TITLE: Impact of Early Sedative Medication Choices for Ventilated Patients in the Emergency Department

AUTHORS: David Oliver, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: Evaluate the impact of initial sedation on clinical outcomes at a community teaching hospital.

SELF ASSESSMENT QUESTION: What effect did initial sedation with propofol in the emergency department have on duration of mechanical ventilation?

BACKGROUND: Sedation is commonly used in mechanically ventilated patients to promote ventilator compliance, prevent agitation related harm, and relieve anxiety and stress. Recent studies have focused on the effects of early light vs deep sedation in the emergency department (ED) on patient outcomes. The effects of specific initial sedative and analgesedative agent choices in the ED on patient outcomes are less defined. The purpose of this study was to determine the impact of initial sedation choices in the ED on clinical outcomes.

METHODOLOGY: The electronic health record was utilized to perform an IRB-approved retrospective chart review of ED patients who visited this institution from January 2017 to December 2019. The primary outcome was duration of mechanical ventilation. Secondary endpoints included time to delirium, hospital mortality, hospital length of stay (LOS), intensive care unit LOS, ED LOS, and whether other sedatives or analgesics were added for sedation. Sedative and analgesedative regimens that were assessed included propofol, ketamine, benzodiazepines, dexmedetomidine, and fentanyl. Other baseline characteristics were also obtained. Endpoints were analyzed using appropriate descriptive and inferential statistics.

RESULTS: Two-hundred fifty patients were included in the study. Propofol was used in 171 patients and was the most utilized initial sedative agent. The median duration of mechanical ventilation for propofol, ketamine, benzodiazepines, fentanyl and dexmedetomidine was 2.2, 3.6, 2.7, 2.1, and 1.8 days respectively ($p=0.78$). The results for each of the secondary outcomes were similar among groups.

CONCLUSIONS: No significant difference was found between initial sedative groups regarding median duration of mechanical ventilation or any secondary outcome.

Video Link: <https://youtu.be/zTFkRmdTvuc>

I Evaluation of Remdesivir and Convalescent Plasma and Their Impact on In-Hospital Mortality and Time to Discharge for Patients with COVID-19

Room I

Presenters: Brittany Bowers

TITLE: Evaluation of Remdesivir and Convalescent Plasma and Their Impact on In-Hospital Mortality and Time to Discharge for Patients with COVID-19

AUTHORS: Brittany Bowers, PharmD; Heather Gibson, PharmD, BCPS, BCIDP; Jennifer Campbell, PharmD, BCPS; Drew Kessell, PharmD, MBA, MS

OBJECTIVE: Determine the effect on in-hospital mortality and time to discharge in patients who received remdesivir or convalescent plasma therapy.

SELF ASSESSMENT QUESTION: Does the information provided support the use of remdesivir in hospitalized COVID-19 patients?

BACKGROUND: The coronavirus disease 2019 (COVID-19) pandemic led to the Emergency Use Authorization (EUA) of experimental treatment options, including remdesivir and convalescent plasma, for hospitalized COVID-19 patients. Remdesivir was FDA-approved on October 22, 2020 for the treatment of COVID-19 in adults and pediatric patients ≥ 12 years of age weighing at least 40 kg. Randomized control trials (RCTs) have been conducted to assess the benefit of remdesivir in hospitalized COVID-19 patients, however, the results of these studies have been inconsistent. Small scale studies have demonstrated safety and clinical improvement in patients receiving convalescent plasma. The objective of this study is to determine the effect on in-hospital mortality and time to discharge in patients who received remdesivir or convalescent plasma therapy.

METHODOLOGY: A retrospective observational study will be conducted to assess the effect of remdesivir and convalescent plasma therapy on in-hospital mortality and time to discharge in patients admitted to the FirstHealth of the Carolinas hospital system between April 1, 2020 to August 31, 2020. Patients greater than 18 years old with a laboratory confirmed case of COVID-19 who received one or both of the treatment options will be included in this study. Exclusion criteria will include patients who have received tocilizumab. Patients will be divided into three groups based on receiving remdesivir, plasma, or both treatment options. A subgroup analysis will be conducted on location of admission (intensive care unit vs. general medicine) and baseline characteristics such as: gender, age, ethnicity, and comorbid conditions.

RESULTS: In process

CONCLUSIONS: In progress

I Validation of Local Pseudomonas aeruginosa Risk Factors in Patients with Community-Onset Bacterial Pneumonia

Room H

Presenters: Morgan Pizzuti

TITLE: Validation of Local Pseudomonas aeruginosa Risk Factors in Patients with Community-Onset Bacterial Pneumonia

AUTHORS: Morgan Pizzuti, Bailey Smith, Chao Cai, William Lindsey, P. Brandon Bookstaver, Joseph Kohn, Majdi Al-Hasan, Hana Winders, Julie Ann Justo

OBJECTIVE: To describe validation methods for local Pseudomonas aeruginosa risk factors in patients with community-onset bacterial pneumonia.

BACKGROUND: The international management guidelines for community-acquired pneumonia encourage development and validation of institutional treatment guidelines based on local risk factors. Previous research from our health system identified local risk factors for Pseudomonas aeruginosa in adult, hospitalized patients with community-onset bacterial pneumonia. The study demonstrated that individuals with bronchiectasis, interstitial lung disease, prior airway colonization with P. aeruginosa within the last 12 months, and recent exposure to beta-lactam antibiotics within the last 3-30 days had a greater risk of P. aeruginosa pneumonia. Our institution developed local pneumonia treatment guidelines focusing on use of empiric antibiotics for patients with risk factors for P. aeruginosa. The aim of this study was to validate the local P. aeruginosa risk factors in patients with community-onset bacterial pneumonia.

METHODOLOGY: This was a retrospective, observational cohort study. Patients were screened from reports of respiratory specimens and admissions with MS-DRG codes associated with pneumonia between January 1, 2017 to March 31, 2020. Enrolled subjects were adult patients aged ≥ 18 years, admitted to Prisma Health Richland, Baptist, or Baptist Parkridge hospital campuses with: a diagnosis of pneumonia, receipt of inpatient antibiotic therapy within 48 hours after pneumonia symptom onset, and receipt of >48 hours of antibiotic therapy. Patient comorbidities, culture results, antibiotic therapy, and acute severity of illness were collected. Statistical analyses include sensitivity, specificity, positive and negative predictive value, overall accuracy and over and under treatment proportion.

CONCLUSION: Our local risk score had a modest performance with 78% overall accuracy. Our local guideline concordance increased from the pre-implementation to the post-implementation period as well as our bacterial diagnostic testing use. Future directions include prescriber education and optimization of clinical informatics.

L Pharmacist-Led Medication Reconciliation Process Improvement in a Community Hospital General Medicine Unit Room E

Presenters: Benjamin Tutterow

Title: Pharmacist-Led Medication Reconciliation Process Improvement in a Community Hospital General Medicine Unit

Authors: Benjamin Tutterow, PharmD, MSCR; Dustin Bryan, PharmD, BCPS; Susan Canady, PharmD; Melissa Steedly, PharmD; Savannah Knepper, PharmD, BCPS

Purpose/Background: Multiple studies and systematic analyses have demonstrated the importance of an accurate medication reconciliation. Cape Fear Valley Medical Center (CFVMC) is a 691 bed acute care academic medical center employing 6 emergency department pharmacy technicians responsible for conducting all medication reconciliations. Despite these services, there are still patients admitted who do not have a proper medication reconciliation completed prior to their admission to the floor, where the registered nurse is responsible for conducting the medication reconciliation. Pharmacists can be especially beneficial in conducting medication reconciliations, as they have been trained to analyze the patient to gain a comprehensive understanding of the treatment regimen, thus equipping them to make interventions when appropriate. The purpose of this study is to determine the value of a pharmacist-led medication reconciliation service at Cape Fear Valley Medical Center.

Methodology: Participants included in this study were adults 18 years of age and older admitted to a CFVMC general medicine unit. Included adult patients were admitted for 72 hours or less during the study period from October 1 to October 31, 2020 taking at least one scheduled medication prior to admission. The primary endpoint was the number of interventions related to medication reconciliation events conducted by a pharmacist. Secondary endpoints were types of interventions performed, amount of cost avoidance associated with each intervention, amount of time required to perform the medication reconciliation, and percentage of accepted interventions. Descriptive statistics were used to analyze the data of this study.

Results: 17 total interventions were performed and accepted over the study period involving 3 intervention subtypes; drug/disease (5), drug/dose (4), and drug/drug (1). Overall cost avoidance was \$19000, mean time to perform the medication reconciliation was 21.2 minutes, and 58.8% of interventions were accepted.

Conclusions: Pharmacist-led medication reconciliation resulted in few interventions, likely due to the study location and efficient emergency department pharmacy technicians. An inadvertent benefit in staff pharmacist workflow resulted from the use of documentation strategies developed in study.

O Evaluation of a Titration Protocol for Paclitaxel Infusions in the Gynecology Oncology Population Room A

Presenters: Jacob Calahan

TITLE: Evaluation of a Titration Protocol for Paclitaxel Infusions in the Gynecology Oncology Population

AUTHORS: Jacob Calahan, Allison Guyton

OBJECTIVE: Describe the rationale for titrating initial paclitaxel infusions and the impact a titration has on the incidence of infusion-related reactions.

SELF ASSESSMENT QUESTION: Does titrating paclitaxel decrease the incidence of infusion-related reactions?

BACKGROUND: The purpose of this study is to implement a titration protocol for initial cycles of paclitaxel for gynecology oncology patients in order to reduce the incidence of infusion reactions.

METHODOLOGY: A retrospective chart review included 206 encounters among 97 adult patients treated with carboplatin or paclitaxel. All encounters occurred from July 1, 2019 through December 31, 2019 and only included patients with a gynecologic malignancy. Data collection included demographics, comorbidities, chemotherapy regimen, and history of malignancy. Information on reactions was collected through documentation within the EHR, which included symptoms, management of reaction, and re-initiation of chemotherapy when applicable. A paclitaxel titration protocol was designed based on a literature review and an anonymous survey of oncology nurses. The protocol was approved by gynecologic oncologists, clinical oncology pharmacists, and oncology nurses. Nurses and pharmacists at our infusion center were educated on the titration protocol. The titration is being utilized during the first two cycles. Following implementation, data is being collected to assess the impact of titration on the incidence of infusion reactions.

RESULTS: Prior to protocol implementation, the overall incidence of paclitaxel-related infusion reactions was 12.1% (14/106). Each paclitaxel-related infusion reaction occurred during cycle 1 (N = 12, 85.8%) or cycle 2 (N = 2, 14.2%). Thus, the incidence of reaction to paclitaxel among cycle 1 and 2 was 24.6% (14/57). The protocol was implemented on February 8, 2021. Although post-protocol data is being collected, 8 weeks of data demonstrate infusion-related reactions to paclitaxel during all cycles and the first 2 cycles have decreased to 4.8% (2/42) and 8.3% (2/24), respectfully. Results for post-protocol implementation are pending.

CONCLUSIONS: In Progress

Presenters: Leanna Borges

TITLE: Assessment of Insulin Utilization for Early Post-transplant Glycemic Control in Liver Transplant

AUTHORS: L Borges, K Gutierrez, J Banbury, T Sparkman

OBJECTIVE: Describe the factors associated with requiring insulin after liver transplant

SELF ASSESSMENT QUESTION: What are some risk factors for requiring insulin after liver transplant?

BACKGROUND: Transient hyperglycemia after liver transplant (LT) is common due to the use of high-dose steroids at the time of transplant, but some patients may progress to true diabetes mellitus (DM). The purpose of this study is to assess insulin prescribing practices after LT and categorize the duration of insulin use in patients with no prior history of DM.

METHODOLOGY: This study is a single-center, retrospective cohort analysis of liver transplant recipients between July 1, 2018 to June 1, 2019 at the University of Alabama at Birmingham Hospital. The primary outcome is the proportion of patients without prior history of DM who were discharged on insulin and required insulin at 3 months post-discharge

RESULTS: A total of 107 patients were included in the preliminary analysis. Approximately 18% of patients were on an antidiabetic medication prior to LT. At discharge, 18 patients without a history of DM were prescribed insulin after LT. Of these patients, 26.7% required insulin at the 3 month follow-up. Twelve months after discharge, four remained on insulin.

CONCLUSIONS: The results of this study suggest that the majority of patients with no prior history of DM do not require long-term insulin therapy after LT. Of note, the use of oral antidiabetic medications in this study was low warranting further exploration regarding the benefit of these agents in this population.

Presenters: Priscilla Burgess

TITLE: Impact of Pharmacist-led Comprehensive Medication Reviews in a Geriatric and Palliative Care Pharmacy Service

AUTHORS: Priscilla Burgess, Melissa Pendoley, Jasmine Peterson, Suzanne Booth

OBJECTIVE: Determine the number of medication changes made per Geriatric or Palliative Care Pharmacy Service comprehensive medication review (CMR) within Kaiser Permanente Georgia (KPGA).

SELF ASSESSMENT QUESTION: What types of interventions can pharmacists make during Geriatric or Palliative Care CMRs?

BACKGROUND: Clinical pharmacy specialists (CPS) are well positioned to provide optimal patient care through completion of CMRs. Geriatric and palliative care patients are vulnerable to medication-related problems due to polypharmacy. The Geriatrics and Palliative Care Clinical Pharmacy Service at KPGA completes CMRs prior to initial consultation appointments with providers. The purpose of this study is to assess the number of medication changes made per CMR as a result of CPS intervention to guide future changes to workflow.

METHODOLOGY: This cross-sectional study includes KPGA members that received a CMR from a Geriatric and Palliative Care CPS between July 1, 2019 and December 31, 2019. Members were excluded if the CMR was completed by a pharmacy resident or if the CMR took place after the Geriatric or Palliative Care consultation appointment. The primary outcome is the number of medication changes made per Geriatric or Palliative Care CMR. Secondary outcomes include the method of medication change, the recommendation acceptance rate, the type of medication change made, and the acceptance rate of each type of intervention.

RESULTS: A total of 30 Geriatric CMRs and 30 Palliative care CMRs were reviewed. Approximately 8 medication changes were made per Geriatric or Palliative Care CMR, 7 of which were per collaborative practice agreement and 1 of which was by recommendation to provider. Approximately 2 recommendations were sent to provider per CMR, of which almost 34% were accepted.

CONCLUSIONS: Overall, the majority of medication changes made were per collaborative practice agreement. Greater than one-third of recommendations sent to providers were accepted.

Impact of pharmacist-led comprehensive medication reviews in a geriatric and palliative care pharmacy service from Priscilla Burgess on Vimeo.

B IMPACT OF VIRTUAL PHARMACIST INTERVENTION ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ADMISSION RATES FOR EXACERBATIONS Room J

Presenters: Kelsey Cumbass, PharmD

TITLE: IMPACT OF VIRTUAL PHARMACIST INTERVENTION ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ADMISSION RATES FOR EXACERBATIONS

AUTHORS: Kelsey Cumbass, Nathaniel Swanson, Deborah Hobbs

OBJECTIVE: Describe the purpose of implementing a virtual pharmacist-led COPD clinic and the possible outcomes of such implementation.

SELF ASSESSMENT QUESTION: What are the limitations of implementing a virtual pharmacist-led COPD clinic?

BACKGROUND: Approximately 16 million Americans have been diagnosed with COPD and millions more suffer without a formal diagnosis. COPD was the fourth leading cause of death in the United States in 2017 and the second most common cause of admission for an ambulatory care sensitive condition (ACSC) from 2018-2019. The ACSC Observed/Expected (O/E) ratio for COPD measures the actual hospitalizations for ACSC divided by the predicted number of hospitalizations. The COPD ACSC O/E admission ratio for CVVAMC from January to March 2019 was above the national average (1.0) at 1.26 indicating the facility has seen more hospitalizations due to COPD than expected. The COVID-19 pandemic has posed new challenges in conducting necessary face-to-face clinic visits while weighing the risks of potentially exposing high-risk patients to the virus in the process. Therefore, the purpose of this study is to implement a virtual pharmacist-led COPD clinic and determine if this will decrease both the O/E ratio and the number of hospitalizations due to COPD exacerbations.

METHODOLOGY: This quality improvement project was approved by the Pharmacy and Therapeutics committee in September 2020. Veterans were identified by the intelligent preventative care database based on their ACSC risk score. This database identifies Veterans who are higher risk than 95% of the facility patients for COPD admission. Eligible Veterans' charts were reviewed, and the Veterans were contacted by either telephone or video call. A custom COPD template was utilized, and progress notes were recorded into the computerized patient record system. Initial visits began taking place November 2020. Virtual follow-up visits were conducted at four weeks and twelve weeks from initial intervention in order to reassess the Veteran's COPD management to include inhaler technique, smoking status, and vaccination status post-intervention.

RESULTS: As presented.

CONCLUSIONS: As presented.

C Optimizing Direct Oral Anticoagulant (DOAC) therapy using a patient population management tool: A quality improvement project Room D

Presenters: Jenna Sewell

TITLE: Optimizing Direct Oral Anticoagulant (DOAC) therapy using a patient population management tool: A quality improvement project

AUTHORS: Jenna Sewell, Frances Hoffman, Morgan Tolley, Nidia Edwards, Mary Anne Ford, Tiffany Jagel

OBJECTIVE: Address patients flagged through the DOAC Dashboard due to meeting specified criteria outside the recommendations for DOAC use.

SELF ASSESSMENT QUESTION: Which metric(s) can be used to evaluate whether DOAC use is safe and effective?

BACKGROUND: The purpose of this project is to determine the best course of action to ensure optimal patient safety and proper utilization of the DOAC Dashboard through improvement of internal standard operational procedures and policies.

METHODOLOGY: This project will look at all patients identified via the DOAC Dashboard from August 2020 to February 2021 requiring a possible intervention for active NSAID use, dosing, notable hemoglobin, platelets or liver function tests, critical drug interactions, bariatric surgery, or valve replacement. Each anticoagulation Clinical Pharmacy Specialist (CPS) will document the type of flag, intervention recommended, and time spent. Data on the type of flag, the number of flags addressed, and the rate of interventions initiated will be collected using Excel and descriptive statistics will be used to evaluate measures.

RESULTS: A total of 448 flags on the DOAC Dashboard were addressed by CPSs between the months of August and December 2020. Of the total number of flags addressed, 41% were identified by CPSs as requiring intervention.

DOAC dosing issues and active NSAID use with a DOAC represented 47% and 27% of the flags addressed, respectively. The average amount of time spent to address the flags was around 13 minutes.

CONCLUSIONS: CPSs were able to address the minimum requirement of 5 DOAC Dashboard flags per week. The number of flags trended down for most metrics with the exception of dosing flags and notable hemoglobin, platelets, and liver function tests, for which the rate of flags being added to the dashboard may be faster than the rate at which the flags are addressed. A defined update to the plan to address flags would be needed to ensure that all flags can be addressed in a timely manner moving forward.

Presenters: Jeffery Lo

Title: Outcomes in Renal Transplant Patients with COVID-19

Authors: Jeffery Lo, Kayla Nichols, Jolie Gallagher, Sara Gattis, Arpita Basu

Objective: Describe the mortality rate of critically ill renal transplant patients with COVID-19

Self Assessment Question: Which critically ill population had the highest mortality rate?

Background: Many studies regarding COVID-19 infections in renal transplant patients are case reports and small-scale reviews focused on the management of infection; less data is available regarding mortality rate and risk factors for developing severe disease and death. The purpose of this study is to compare the mortality rate of critically ill renal transplant patients with COVID-19 infection to other critically ill patient populations with COVID-19 infection.

Methodology: This is a retrospective chart review performed at Emory Healthcare from 03/01/2020 – 08/31/2020.

Renal transplant patients were compared with other solid organ transplant (SOT), immunocompromised, and non-immunocompromised patients. The primary outcome is in-hospital mortality. Secondary outcomes include hospital and intensive care unit (ICU) length of stay, changes in immunosuppression, new thrombotic/bleeding events, rate of concurrent infections, rate of renal replacement therapy, loss of allograft in SOT, and readmission rate.

Results: Mortality rates were 66.7%, 25%, 33.3%, and 20% for renal transplant, other SOT, immunocompromised, and non-immunocompromised patients, respectively. There was a significant difference in rates between renal transplant and non-immunocompromised patients ($p = 0.014$) and between renal transplant patients and patients of all other groups combined ($p = 0.0084$). There were also significant differences in length of stay, changes in immunosuppression, renal replacement therapy, and mechanical ventilation.

Conclusions: Critically ill renal transplant patients with COVID-19 had a higher observed mortality rate than all other groups in this study.

YouTube Link: <https://youtu.be/DMoS6zyE9sk>

Presenters: Aaron Henslee

TITLE: Pharmacist driven quality improvement of intravenous alteplase use in ischemic stroke patients at a large community hospital

AUTHORS: Aaron Henslee, Nellie McKee, Jeremy Ray

OBJECTIVE: The objective of this project is to streamline the current process of administering alteplase in ischemic stroke patients at our facility, with the goal of reducing our facility's door to tPA time.

SELF ASSESSMENT QUESTION: Which of the following is/are contraindications to using intravenous alteplase in patients with ischemic stroke? a. Daily use of an oral anticoagulation agent b. A blood pressure of 198/122mmHg c. Recent intracranial bleeding d. All of the above

BACKGROUND: The objective of this project is to streamline the overall process of administering alteplase in ischemic stroke patients, with the goal of reducing our facility's door to tPA time.

METHODOLOGY: A retrospective chart review was performed on every stroke alert that was called at our facility's emergency department from June 2020 through December 2020 ($n = 497$). A early tPA mixing criteria was implemented April 7, 2021 for neurology nurse practitioners to use while assessing patients.

RESULTS: Of the 497 patients who were evaluated, eleven patients received tPA with an average door to tPA time of sixty three minutes.

CONCLUSIONS: In process. Data collection will continue through June 7, 2021.

Presenters: Justine Nurse-McLeod

TITLE: Integrating an Age-Friendly Health System Initiative into Geriatric Primary Care

AUTHORS: Justine Nurse-McLeod, Lawanda Kemp, Kimberly Manns, Anna K. Mirk

OBJECTIVE: Evaluate the impact of a geriatric-focused model of care on geriatric outcomes within a primary care setting

SELF ASSESSMENT QUESTION: Does routine clinical pharmacy specialist consultation within a geriatric primary care setting facilitate deprescribing of potentially inappropriate medications or reduction of polypharmacy?

BACKGROUND: Veterans in the United States comprise a population that is older and frequently requires more complex care than the general population. In order to better manage the unique health challenges and needs of older veterans, the Geriatric and Extended Care department at the Atlanta Veterans Affairs (VA) Health Care System adopted the 4Ms Framework, a set of evidence-based elements of high-quality care for older adults centered around four core components: What Matters, Medication, Mentation and Mobility.

METHODOLOGY: Study methods were adapted from Integrated Management and Polypharmacy Review of Vulnerable Elders (IMPROVE), an ongoing initiative developed by the Atlanta VA Geriatric Research, Education, and Clinical Center (GRECC) to improve medication management in older veterans using a pharmacist-led comprehensive medication management visit. Criteria for program inclusion included new referral for geriatric consultation within the Atlanta VA Geriatric Patient Aligned Care Team or Virtual Geriatrics service between August 24, 2020 and March 24, 2021. Aimed at ensuring the use of age-friendly medications, a geriatric clinical pharmacy specialist (CPS) conducted a comprehensive medication review to include medication reconciliation, evaluation of medication indication, safety and appropriateness and adherence and health literacy screenings, prior to the first visit with the geriatrician.

Recommendations were relayed via the electronic medical record. The primary project outcome was the number of medications reduced. Secondary outcomes included the number of potentially inappropriate medications (PIMs) discontinued, number of CPS recommendations made and identified barriers to adherence. Data was collated and analyzed using descriptive statistics and the paired Student's t-test.

RESULTS: In total, 29 veterans were identified for study inclusion between 8/24/20 and 3/24/21. The mean age was 78.2 (range 63-92) and an average of 12 (range 5-24) medications were being taken prior to CPS intervention. The primary outcome resulted in a mean reduction of 2 in the number of medications being taken (range 0-8). The mean number of PIMs reduced was 1.1 (range 0-6). An average of 1.7 (range 0-3) barriers to adherence were identified and the mean number of medication changes recommended by the CPS was 1.7 (range 0-5).

CONCLUSIONS: Among older veterans receiving care in a geriatric outpatient setting, integration of the 4Ms Framework, with a focus on medication safety by a geriatric CPS, resulted in identification of barriers to adherence and an overall reduction in polypharmacy and PIMs.

Video Link: https://drive.google.com/file/d/1B4A2BwTt_o5GpD9HUuSELaDiPHapK8Y/view?usp=sharing

Presenters: Cassandra Henry

TITLE: Comparison of in-hospital mortality in COVID-19 patients treated with tocilizumab

AUTHORS: Cassandra Henry, Geren Thomas, Daniel Chastain, Maura Hall

OBJECTIVE: Describe the impact of tocilizumab on in-hospital mortality in patients age < 45 years, 45 – 64 years, and ≥ 65 years.

SELF ASSESSMENT QUESTION: Among the patients in this study, which age group has the highest in-hospital mortality rate after treatment with tocilizumab?

BACKGROUND: Assess the effect of tocilizumab on mortality among different age groups of patients with COVID-19

METHODOLOGY: This study is a single center, retrospective chart review performed at a community hospital. Patients with laboratory confirmation of SARS-CoV-2 infection and a COVID-19 diagnosis who received at least one dose of intravenous tocilizumab between April 1, 2020 and August 31, 2020 were included. Patients were excluded from this study if they received tocilizumab for an indication other than COVID-19. The primary outcome of the study is the rate of in-hospital mortality among patients ages < 45 years, 45 – 64 years, and ≥ 65 years. Secondary outcome measures include the rate of intubation after dose administration, time from last dose administration to discharge, and hospital length of stay. Data was analyzed using descriptive statistics.

RESULTS: 99 patients were included in the study with 10 patients < 45 years, 48 patients 45 – 64 years, and 41 patients ≥ 65 years. Baseline characteristics were similar among the three groups with exceptions. The in-hospital mortality rate was 38% in the 45 – 64 years group compared to 20% and 32% in the < 45 years and ≥ 65 years groups respectively. 16% of patients were intubated after dose administration, and the median time to discharge and hospital LOS were lowest in the < 45 years age group.

CONCLUSIONS: The in-hospital mortality rate was highest among patients in the 45 – 64 years age group. These findings were likely due to differences in disease severity and pharmacologic standard of care.

I Impact of combination therapy and other risk factors on outcomes in persistent MRSA bloodstream infections

Room H

Presenters: Erin Bendock

TITLE: Impact of combination therapy and other risk factors on outcomes in persistent MRSA bloodstream infections
 AUTHORS: Erin Bendock, PharmD; Mahmoud Shorman, MD; Laurence Wright, PharmD; Samantha Yeager, PharmD, BCPS; Michael Veve, PharmD, MPH

OBJECTIVE: Discuss combination therapy and other modifiable risk factors that may impact patient outcomes.

SELF ASSESSMENT QUESTION: What effect on patient outcomes was observed in patients who received combination therapy?

BACKGROUND: Combination methicillin-resistant Staphylococcus aureus (MRSA) therapy is often utilized in complicated MRSA bloodstream infections (BSIs) with persistently positive cultures, though there is limited published literature regarding optimal timing of initiation, duration of combination, and patient selection. The objective of this study was to identify risk factors for clinical failure in patients with persistently positive MRSA BSIs, with a focus on combination anti-MRSA therapy.

METHODOLOGY: Retrospective cohort evaluated adult hospitalized patients with complicated MRSA BSIs from 1/2016-7/2020. Additional inclusion criteria were: positive MRSA blood cultures >3 days, receipt of anti-MRSA therapy ≤48 hours of bacteremia identification. Exclusion criteria: lack of repeat blood cultures drawn or polymicrobial BSI.

The primary endpoint was a composite of 90-day clinical failure: infection-related readmission, relapse of infection, or all-cause mortality. The exposure of interest was combination anti-MRSA therapy.

RESULTS: 193 patients were included: 83 (43%) experienced 90-day clinical failure, 110 (57%) did not. Baseline characteristics were comparable between groups; the median (IQR) age was 46 (35-59) years, 60% were men, and 52% reported active or a history of injection drug use. The most common infection types were: endocarditis (43%), bone/joint (29%), skin (12%), and other (18=7%). Combination anti-MRSA therapy was used in 72 (37%) patients and initiated a median (IQR) 7.6 (5.4-10.3) days from initial positive culture; the most common regimen was daptomycin with ceftaroline (46, 64%). 32 (45%) of patients who received combination anti-MRSA therapy were prescribed this therapy for the remainder of the treatment course. There was no significant difference in 90-day clinical failure in patients who received combination anti-MRSA therapy compared to those who did not (44% vs. 42%, P=0.72).

Patients that received combination therapy had a significantly faster median (IQR) time to culture clearance compared to those who received monotherapy (11 [9-16] days vs. 7 [5-9] days, P<0.001).

L Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

Room E

Presenters: Kristin C. Davis, PharmD, MBA

TITLE: Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

AUTHORS: Kristin Davis, Lindsay Reulbach, John Schrank, Alex Ewing, Emily Johnson

OBJECTIVE: Identify the outcomes of patients with variceal bleeding treated with less than 7 days of antibiotics for the prevention of SBP

SELF ASSESSMENT QUESTION: True or False: Less than 7 days may be a reasonable duration of antibiotics for the prevention of SBP in variceal hemorrhage

BACKGROUND: Spontaneous bacterial peritonitis (SBP) is a serious complication of variceal gastrointestinal hemorrhage. The American Association of the Study of Liver Diseases (AASLD) recommends a maximum of 7 days of antibiotics after a variceal hemorrhage to prevent SBP; however, recent studies have suggested shorter durations of prophylactic antibiotics. The objective of this study was to determine if less than 7 days of antibiotic prophylaxis is noninferior to 7 or more days in patients with cirrhosis and upper gastrointestinal bleeding (UGIB).

METHODOLOGY: This study was a single-center, retrospective cohort conducted from August 2019 to August 2020 that included patients who received treatment for upper gastrointestinal bleeding (UGIB) due to variceal hemorrhage and antimicrobial therapy for prevention of SBP during hospitalization. The primary outcome was in-hospital mortality. Secondary outcomes included SBP within the first 30 days after UGIB, 30-day mortality, 30-day readmission rate, incidence of rebleeding at 7 and 30 days, incidence of Clostridioides difficile infection, and intensive care unit and hospital length of stay.

RESULTS: In Progress

CONCLUSIONS: In Progress

N Effect of cannabidiol (Epidiolex®) on seizure related emergency department (ED) visits and hospital admissions

Room F

Presenters: Aaron Michael Chase

TITLE: Effect of cannabidiol (Epidiolex®) on seizure related emergency department (ED) visits and hospital admissions

AUTHORS: Aaron Chase, Olubusola Fowowe, Renad Abu-Sawwa

OBJECTIVE: Discuss effect of cannabidiol on seizure-related ED visits and hospital admissions in patients at our institution.

SELF ASSESSMENT QUESTION: What are the FDA approved indications for Epidiolex?

BACKGROUND: Intractable seizure disorders are common and lack many effective treatment options. Many have poor outcomes and patients frequently utilize healthcare resources. Cannabidiol was recently approved for use in some intractable seizure syndromes and provides a highly effective treatment option. There is no data on how cannabidiol effects healthcare utilization. Our aim was to determine how cannabidiol effects seizure-related hospital admissions and ED visits.

METHODOLOGY: Methods: This single center retrospective cohort study included patients >1 year old and excluded those who participated in a clinical trial of cannabidiol or were on therapy

P Impact of clozapine complete blood count (CBC) monitoring overrides on adverse effect rates during COVID-19

Room G

Presenters: Ashley Glass

TITLE: Impact of clozapine complete blood count (CBC) monitoring overrides on adverse effect rates during COVID-19

AUTHORS: Ashley Kang Glass and Hannah E. Rabon

OBJECTIVE: To describe the impact on medication safety and efficacy when dispensing clozapine without standard lab monitoring during COVID-19.

SELF ASSESSMENT QUESTION: Did extended lab monitoring impact the frequency of clozapine associated adverse events?

BACKGROUND: As part of the Risk Evaluation and Mitigation Strategy (REMS) requirement to prescribe clozapine, providers must obtain a CBC either weekly, bimonthly, or monthly depending on length of treatment. This project evaluated the impact of a national REMS override allowing certified prescribers to dispense clozapine without standard lab monitoring during the COVID-19 pandemic.

METHODOLOGY: Medical charts of Veterans prescribed clozapine from March 1, 2020 – December 1, 2020 were reviewed to determine if patients received a lab override due to COVID-19. Patient-specific characteristics and the frequency of adverse events such as neutropenia, infections, emergency-department (ED) visits, and hospitalizations were collected. Incidence of events were reported from the time of the first monitoring override to present and compared to incidence rates in the year prior to the first override. Significant changes in frequency of adverse events were determined using matched-pairs tests.

RESULTS: All Veterans prescribed clozapine (n=11) received overrides to extend therapeutic monitoring. The average monitoring frequency was 15 weeks. Therapy was primarily managed by psychiatric pharmacists through telephone appointments. Patient-specific characteristics did not appear to influence override decisions. Extended monitoring intervals did not result in significant changes in rates of ED visits, medical or psychiatric hospitalizations, infections, or neutropenia.

CONCLUSIONS: There were no significant differences in the rate of adverse outcomes between REMS recommended monitoring and extended monitoring. These safety and efficacy results will help inform ongoing clozapine prescribing and monitoring practices during the COVID-19 pandemic and beyond. Conclusions are limited by the study's small homogenous population. Future research could include data-pooling across healthcare systems that implemented CBC overrides to confirm these results.

Presenters: Erin Sherwin

TITLE: Impact of Dashboard Utilization on Recombinant Zoster Vaccination Rates

AUTHORS: Erin Sherwin, PharmD, Courtney Berg, PharmD, Kendra Brookshire, PharmD

OBJECTIVE: Describe how monitoring patients via a dashboard can assist in closing vaccination gaps.

SELF ASSESSMENT QUESTION: What are important factors to consider in immunization documentation?

BACKGROUND: Assess the use of a dashboard to close immunization gaps for patients who have received the first dose of the recombinant zoster vaccine.

METHODOLOGY: We conducted retrospective chart review of electronic medical records via a dashboard of patients in a primary care clinic who have received at least one documented dose of the recombinant zoster vaccine (RZV) prior to 11/30/2020. Charts were reviewed for process vulnerabilities such as lack of documented receipt of any dose in the series. Nurses and providers were educated on best practices for vaccine ordering and documentation using the RZV clinical reminder tool in the Computerized Patient Record System (CPRS). Medical support assistants (MSAs) were then instructed to schedule patients due or overdue for the second dose of the series. The number of patients with documented completed RZV immunization series prior to examining the dashboard will be compared to the number with documented completed series after.

RESULTS: Research is currently ongoing. Through review of the dashboard, 266 patients were identified in a primary care clinic who have received at least one dose of RZV and 153 patients noted as due for a second dose as of 11/30/2020. 129 were overdue to complete the series being more than 6 months out from the date of receiving the first dose. 19 patients had follow-up appointments in the blue clinic scheduled as detected by the dashboard. After chart review, 13 patients were identified who were flagged as due for the second dose by the dashboard but who had in fact completed the series due to missing documentation of one dose. The remaining patients who had not completed the series were originally scheduled for appointments with primary care within 6 months, but due to precautions taken to mitigate the spread of COVID-19, those appointments were converted to telehealth appointments. Implementation of dashboard monitoring to close immunization gaps is ongoing.

CONCLUSIONS: Dashboard monitoring of multi-dose series immunizations could help ensure patients receive doses of vaccines on schedule and prevent illness.

Presenters: Abigail Wiggins

TITLE: Implementation of a Clinical Decision Support Tool for the Treatment of Hypertension in a Family Medicine Clinic

AUTHORS: Abigail Wiggins, PharmD, MPH; Rebeca Higdon, MPH; Julie Jeter, MD; Shauntá Chamberlin, PharmD, BCPS, FCCP

OBJECTIVE: Assess the impact of a new clinical decision support tool (CDS) on appropriateness of hypertension management.

BACKGROUND: Nearly half of adults in the United states have blood pressures that constitute a hypertension diagnosis. A large percentage of patients with hypertension are not on any pharmacotherapy and many are on inappropriate or inadequate regimens. The purpose of this study is to assess the impact of a clinical decision support (CDS) tool on adherence to guideline directed hypertension management. The CDS tool provides guidance for hypertension pharmacotherapy initiation and continuing management.

METHODOLOGY: This study is a pre- and post-implementation, cross-sectional review of adult patients seen in Family Medicine clinic prior to and following implementation of the hypertension CDS tool. Pre-implementation data collection was conducted for patients with hypertension in their problem list seen January 2020- February 2020. Post-implementation data collection was conducted for patients with hypertension in their problem list seen January 2021- February 2021. Resident, faculty, and nursing education was provided prior to CDS tool implementation to ensure understanding of the tool and integration into practice. Descriptive statistics will be utilized to characterize prescribing trends.

LINK: <https://youtu.be/kO6piBISQkg>

Presenters: Lydia McKay

Title: Impact of RAS Agent Management on Vasoplegia during Cardiac Surgery

Authors: Lydia McKay, Marc Reichert, Monty Yoder

Presentation Objective: Understand the impact of RAS agents on the rate of vasoplegia in patients undergoing cardiac surgery.

Self-Assessment: Should RAS agents be held at least 48 hours before cardiac surgery to lower the rate of vasoplegia?

Background/Purpose: Agents affecting the renin angiotensin system (RAS) have been documented to be a risk factor for vasoplegia in patients undergoing cardiopulmonary bypass surgery, though optimal pre-operative management remains unclear. This study assessed the relationship between the time of discontinuation of RAS agents and the incidence of vasoplegia after cardiac surgery.

Methodology: This project was a single center, retrospective, cohort study designed to determine if time of discontinuation of RAS agent before cardiac surgery has an impact on the incidence of vasoplegia. Using the Wake Forest Baptist Medical Center (WFBMC) cardiothoracic surgery database, a comprehensive list of high risk cardiopulmonary bypass surgeries at WFBMC between January 2018 and December 2020 was obtained and screened for study eligibility. Demographic data (patient age, gender, weight, height, and ethnicity) and baseline characteristics (surgery type, case posting, patient baseline ejection fraction, bypass time, cross-clamp time, deep hypothermic circulatory arrest time, first recorded mean arterial pressure (MAP) in the operating room, RAS agent prior to surgery and RAS agent discontinuation time) were obtained. Stop dates of the RAS agent were determined using the pre-surgery admission medication reconciliation, surgery clinic notes and inpatient medication administration record. The primary endpoint was the rate of vasoplegia in each group, defined as patients with a MAP of less than 65 mmHg requiring at least 10 mcg/minute of norepinephrine and 0.03 units/minute of vasopressin in the operating room or 24 hours post-surgery.

Results: Patients with a RAS agent held 48 hour prior to surgery had a 16.8% incidence of vasoplegia compared to 14.3% of patients with a RAS agent held less than 48 hours before surgery (P= 0.64)

Conclusions: Discontinuing a RAS agent 48 hours before cardiopulmonary bypass surgeries does not appear to have a significant impact on the incidence of vasoplegia

Link to presentation: <https://www.youtube.com/watch?v=QEQpNWbwhtg>

Presenters: Tabitha Brown

TITLE: Effectiveness of a treatment pathway for the management of febrile neonates in the emergency department of an academic children's hospital

AUTHORS: Tabitha Brown, Renee Hughes, Andrea Gerwin

OBJECTIVE: Identify the recommended initial antibiotics and dose selection for the empiric treatment of febrile neonates.

SELF ASSESSMENT QUESTION: What is the recommended initial meningitic dose of ampicillin to empirically treat temperature labile neonates?

BACKGROUND: Emergency departments use evidence-based treatment pathways to guide clinicians in the use of diagnostic testing and standardize treatment of febrile neonates. The purpose of this study was to evaluate the initial management of neonates presenting to the emergency department with temperature instability, implementation of an institution specific treatment pathway, and to review the use of recommended antibiotics, meningitic doses, and available diagnostic testing.

METHODOLOGY: This is an Institutional Review Board approved, single center, retrospective, observational study performed at an academic children's hospital. Chart review was utilized to identify patients aged 28 days or younger with temperature instability by history before arrival or measured in the emergency department during triage. This study compares management of febrile neonates pre-implementation (August to December 2019) and post-implementation (August to December 2020) of the treatment pathway at the study institution.

R High-dose heparin versus weight-adjusted low-molecular weight heparin for venous thromboembolism prophylaxis in critically ill obese patients

Presenters: Amanda Seals

TITLE: High-dose heparin versus weight-adjusted low-molecular weight heparin for venous thromboembolism prophylaxis in critically ill obese patients

AUTHORS: Amanda Seals, Emily Bowers, Eric Shaw, Audrey Johnson

OBJECTIVE: The objective of this study is to determine the effectiveness of VTE prevention between high-dose heparin and weight-adjusted low-molecular-weight heparin in critically ill obese patients.

SELF ASSESSMENT QUESTION: Is there a difference in efficacy between high-dose heparin and weight-adjusted low-molecular-weight heparin for the prevention of VTE in critically ill obese patients?

BACKGROUND: Hospitalized patients are at an increased risk of venous thromboembolism (VTE) with obesity being an additional substantial risk factor. Heparin and low-molecular-weight heparin (LMWH) are both used for VTE prophylaxis in critically ill patients. Heparin 7,500 units subcutaneous every 8 hours or LMWH 0.5 mg/kg/day are used in obese patients for VTE prophylaxis. There is currently limited evidence for a preferred regimen or optimal dose adjustments in obese patients.

METHODOLOGY: This was a single-center, retrospective, institutional review board approved study conducted from July 30, 2015 – January 24, 2021. Adult obese patients who received high-dose heparin (7500 units every 8 hours) or weight-adjusted LMWH (0.5 mg/kg/day) were eligible for study inclusion. Exclusion criteria included pregnant patients, incarcerated persons, patients with clotting disorders, trauma patients, orthopedic patients, and CoVID-19 positive patients. The primary outcome was incidence of VTE during hospital stay. Secondary outcomes included hospital length of stay, hospital mortality, and bleeding. Subgroups included admitting ICUs (medical ICU, surgical ICU, or cardiovascular ICU) and patients with a BMI > 50.

RESULTS: There was a total of 1602 patients screened and 94 patients met inclusion criteria. Of this sample, 47 patients were included in the heparin group and 47 patients were included in the LMWH group. No significant difference in the incidence of VTE was noted between groups: 2 (4%) patients in the high-dose heparin group versus 1 (2%) in the weight-adjust LMWH group ($p=1$). There was no significant difference in the length of stay, hospital mortality, and bleeding between groups. The incidence of VTE did not differ between groups based on ICU subgroup or within patients with a BMI > 50.

CONCLUSIONS: There was not a significant difference in the incidence of VTE between high-dose heparin and weight-adjusted LMWH in this obese critically ill population. <https://youtu.be/0Qb1HKeXZxY>

Presenters: Autumn N. Neff

TITLE: Pharmacy Student Attitudes towards a Career in Older Adult Care

AUTHORS: Autumn N. Neff, PharmD, MBA, CPP; Tasha Woodall, PharmD, BCGP, CPP; Mollie Scott, PharmD, BCACP, CPP; Shannon Rice, PharmD, BCGP

OBJECTIVE: Determine why current pharmacy students are or are not interested in pursuing a career or post-graduate training in geriatric and what influences this.

INTRODUCTION: The United States is facing a rapid rise in the number and proportion of older adults comprising its general population. The workforce prepared to meet the challenges of the aging populace, however, is stagnating or even decreasing. An additional 24000 geriatricians will be required nation-wide by 2030 to meet the healthcare needs of older adults. Further, for the 2020 appointment year, only half of geriatric medicine fellowship positions were filled, and currently, there is limited assessment of the influences contributing to future physicians' attitudes towards careers specialized in older adult care. While Geriatric Post-Graduate Year 2 (PGY2) trained pharmacists could help to extended specialty services for the older adult population, fewer than 30 geriatric pharmacy residency programs are currently available. Previous studies have assessed pharmacy students' attitudes toward older adults, an evaluation of the factors that inform or predict students' interest in pursuing a career in geriatrics has not been published. The primary purpose of this study is to examine the reasons that current pharmacy students are interested or not interested in pursuing a career or post-graduate geriatrics training, and to evaluate factors that influences this.

METHODS: This is a prospective, qualitative research study designed with two phases. The first phase consisted of 60-90 minute focus groups including 3-5 participants from all years of the Doctor of Pharmacy curriculum spanning both campuses of the UNC Eshelman School of Pharmacy. Participants were split into two groups: those who self-declared as interested vs. not interested in a career or post-graduate training in geriatrics. Each discussion was audio recorded and subsequently transcribed, extracting key themes on which to base a survey tool through open thematic coding. Phase two will consist of electronically distributing the survey to a wider base with students at accredited schools of pharmacy in North Carolina as well as Monash University in Melbourne, Australia. Descriptive statistics were utilized to characterize responses, including counts and percentages for categorical variables and median with interquartile range for continuous variables.

RESULTS: Focus group discussion were completed with 8 students. Open thematic coding revealed an identified need, increased clinical acuity, a give and take profession, and past positive experiences as key themes influencing students to pursue a career or post-graduate training in geriatrics. The emotional impact of working with older adults, potential for career limitations, navigating age differences, and difficulty communicating with older adults were identified as factors influencing students away from older adult care. Factors identified as both influencing students to pursue or not to pursue a career or post-graduate training in geriatrics were heightened professional liability and inadequate geriatric exposure.

CONCLUSIONS: Identified need, increased clinical acuity, and past positive experiences were the most common factors influencing students towards a career or post-graduate training.

SELF ASSESSMENT QUESTION: Which of the following was not found to contribute to a pharmacy student's attitude towards a career in older adult care?

LINK TO PRESENTATION: [https://static.sched.com/hosted_files/2021southeasternresidency/05/SERC Presentation - Student Attitudes - Autumn Neff.mp4](https://static.sched.com/hosted_files/2021southeasternresidency/05/SERC_Presentation_-_Student_Attitudes_-_Autumn_Neff.mp4)

I **Comparison of Vancomycin Trough versus Area under the Curve Monitoring in Hospitalized Adult Patients**

Room H

Presenters: Kylie Black

TITLE: Comparison of Vancomycin Trough versus Area Under the Curve Monitoring in Hospitalized Adult Patients

AUTHORS: Kylie Black, NaaDede Badger-Plange, Kristin Horton, Natalie Morgan, Todd Parker, Reena Patel

OBJECTIVE: To determine the relationship between steady-state vancomycin troughs and estimated AUC using Bayesian software.

SELF ASSESSMENT QUESTION: Do steady-state vancomycin troughs of 10-20 mg/L correlate with the recommended target AUC of 400-600 mg*hour/L?

BACKGROUND: The 2020 vancomycin consensus guidelines identify area under the curve to minimum inhibitory concentration (AUC/MIC) as the most appropriate target for vancomycin. Many hospitals utilize steady-state trough concentrations as a surrogate marker for AUC, though this approach has fallen out of favor. The purpose of this study was to compare vancomycin steady-state troughs to estimated AUC values using Bayesian software.

METHODOLOGY: This was a retrospective chart review of adult patients admitted to Piedmont Atlanta Hospital from August-November 2020 who received intravenous vancomycin and had appropriately drawn steady-state troughs. The primary endpoint was to compare the average trough associated with a target AUC of 400-600 mg*hour/L to the standard trough target of 10-20 mg/L. Secondary endpoints included number of patients with a target AUC who had increases in vancomycin dose, average AUC associated with target trough concentrations, and comparison of average troughs and AUC in patients who developed acute kidney injury (AKI).

RESULTS: Sixty-seven patients were included and 83 troughs evaluated. The average trough associated with a target AUC of 400-600 mg*hour/L was significantly lower than the average trough within the standard target of 10-20 mg/L (11.3 vs. 14.6, p=0.00003). Nineteen of 33 patients (57.6%) with an estimated AUC of 400-600 mg*hour/L had potentially unnecessary increases in vancomycin dose. Troughs of 10-14.9 mg/L and 15-20 mg/L were associated with an average AUC of 539 mg*hour/L and 669 mg*hour/L, respectively. Average troughs and AUC were significantly higher in patients who developed AKI (trough 17.7 vs. 11.9, p=0.018; AUC 770 vs. 509, p=0.012).

CONCLUSIONS: Based on this study, analyzing vancomycin AUC with Bayesian software corresponded with significantly lower average trough concentrations compared to standard trough monitoring.

Video link: <https://vimeo.com/538476660>

I **Retrospective case series and proposed algorithm for utilization of procalcitonin in a nonacademic medical center**

Room I

Presenters: Caleb Hammons

TITLE: Retrospective case series and proposed algorithm for utilization of procalcitonin in a nonacademic medical center

AUTHORS: Caleb C. Hammons, Quentin J. Minson, Matthew D. Percy

OBJECTIVE: Describe ordering practices of PCT for LRTI and sepsis in the absence of criteria at a non-academic tertiary hospital

SELF ASSESSMENT QUESTION: What proportion of patients were ordered PCT for LRTI or sepsis despite having confounding factors?

BACKGROUND: Studies have demonstrated both strengths and weaknesses regarding procalcitonin's use in guiding antimicrobial therapies. Certain factors may influence efficacy; including setting, patient population, and additional antimicrobial stewardship strategies in place. While studies have developed and proposed algorithms for interpretation of procalcitonin values based on indication; studies are lacking in development and proposal of an algorithm for initial ordering of a procalcitonin level with a primary objective of optimizing utility. As procalcitonin's usefulness remains debated, we aim to retrospectively evaluate procalcitonin levels ordered in a single institution to determine which patient populations and clinical scenarios may benefit most and prove cost-effective.

METHODOLOGY: The study has been approved by the Institutional Review Board. Retrospective chart review will be performed at a non-academic medical center located in Nashville, TN. Patients greater than or equal to 18 years of age will be evaluated and included in analysis if they had a procalcitonin level ordered and resulted between January and March of 2020. Identification of patients will occur by running reports through a clinical decision support system. An algorithm will be both proposed and applied to patients included in analysis to determine the number of tests potentially saved and overall efficacy of procalcitonin based on new criteria.

RESULTS: In progress

CONCLUSIONS: In progress

PRESENTATION LINK: <https://www.youtube.com/watch?v=hg3XjT4V4L0>

Presenters: Kevin Ashley

TITLE: Automated dispensing cabinet optimization at a tertiary community hospital

AUTHORS: Kevin Ashley and Kristina M. Freeman

OBJECTIVE: Develop interventions necessary to optimize automated dispensing cabinets.

SELF ASSESSMENT QUESTION: What are the benefits and challenges of implementing an automated dispensing cabinet optimization procedure?

BACKGROUND: Automated dispensing cabinets (ADCs) are a major component in the distribution of medications throughout the hospital. In the studied hospital, the ADCs account for over 1 million dollars in inventory. It is important to routinely evaluate this inventory to impact outcomes on pharmacy workflow and budget. The purpose of this study is to determine the components necessary to initiate an ADC optimization procedure at a tertiary community hospital. The goal will be to implement this process, analyze the data, and develop a standardized operating procedure that may be utilized by pharmacy technicians to perform routinely in the future.

METHODOLOGY: Ten percent of the total most commonly utilized ADCs throughout the hospital were involved in this initial analysis. Baseline data was collected during the pre-optimization phase. This involved identifying the tools available to be used for optimization. These tools were used to determine the percent capacity, stockout percentages, and vend:fill ratios for each ADC involved in the analysis as well as identifying medications with the likelihood to expire. Medications that are commonly ordered from the central pharmacy with the potential to be added to the ADCs were also identified. The optimization phase involved utilizing the initial data collected in the pre-optimization phase and making adjustments to each ADC involved in the analysis. Goal stockout percentages and vend:fill ratios were determined and par levels were adjusted to meet these goals. The post-optimization phase involved re-collection of data from the pre-optimization phase, analyzing this data, and comparing results from each phase.

RESULTS: "In Progress"

CONCLUSIONS: "In Progress"

<https://www.youtube.com/watch?v=HnA7RXHt9M4>

Presenters: Perry Thompson

TITLE: Impact of collaborative pharmacist and dietitian interventions for patients with prediabetes

AUTHORS: Thompson P, Johnson A, Kirk C, Neighbors L, Ragan A, Willis B

OBJECTIVE: At the conclusion of the presentation, the audience will be able to identify the preventative measures needed to delay progression to T2DM

SELF ASSESSMENT QUESTION: What interventions may be helpful in delaying progression to T2DM according to the Diabetes Prevention Program results? Select all that apply.

BACKGROUND: Prediabetes is a major problem in the United States, with current Centers for Disease Control statistics estimating that over 1/3 of the adult population are affected. Interventions for patients with prediabetes have demonstrated decreased progression rates to type II diabetes mellitus. The purpose of this quality improvement project is to evaluate the impact of collaborative interventions between pharmacists and dietitians on surrogate markers of prediabetes progression.

METHODOLOGY: Patients were included if they had an HbA1c between 5.7% and 6.4% in the month preceding project initiation and had an estimated glomerular filtration rate \geq 45 mL/minute/1.73 m². Once identified, clinical pharmacy specialists (CPS) contacted patients for initial encounters to address lifestyle interventions, to assess candidacy for metformin initiation, and to gauge interest in referral to a dietitian for personalized medical nutrition therapy. If interested in referral, the patient was contacted by a registered dietitian. CPS continued to follow-up with the patients as clinically indicated for ongoing education and monitoring.

RESULTS: Out of the initial patients (n=92) contacted by CPS, 58.6% (n=54) were interested in receiving interventions. Of the 54 patients, 72.2% (n=39) agreed to a dietitian consult and 22.2% (n=12) were initiated on metformin therapy. At conclusion of data collection, twenty-five repeat HbA1c have shown an average increase of 0.11% from pre-intervention measures. Patients that received all possible interventions (n=6) saw an average decrease in HbA1c of 0.08%.

CONCLUSIONS: Collaborative efforts between pharmacists and dietitians may have a positive impact on an important surrogate marker of prediabetes progression (HbA1c). Pharmacist intervention alone produced variable effects on HbA1c.

LINK TO PRESENTATION (1080p): <https://www.youtube.com/watch?v=fgdLQzH3KrY>

EMAIL: Perry.Thompson1@va.gov

R An Evaluation of Non-Benzodiazepine Options for the Treatment of Alcohol Withdrawal Syndrome in Trauma Patients

Room B

Presenters: Morgan Cantley

TITLE: An Evaluation of Non-Benzodiazepine Options for the Treatment of Alcohol Withdrawal Syndrome in Trauma Patients

AUTHORS: Nunn A, Miller P, Martin R, Cantley M, Rebo K, McCullough MA, Warner R, Smith O, Shilling E

OBJECTIVE: Determine if using PAWSS and a benzodiazepine-sparing protocol can safely and effectively manage patients at risk for AWS in an ICU setting

SELF ASSESSMENT QUESTION: What was the difference of confirmed severe alcohol withdrawal events between groups?

BACKGROUND: Benzodiazepines have historically been associated with delirium in the intensive care unit (ICU). Recent literature suggests that by utilizing the Prediction of Alcohol Withdrawal Severity Scale (PAWSS), clinicians may be able to reserve benzodiazepines for severe cases of alcohol withdrawal syndrome (AWS) and manage patient symptoms of mild to moderate AWS with other modalities. The trauma ICU at our institution previously utilized a protocol recommending either lorazepam or chlordiazepoxide for the treatment of AWS based on the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scoring system. In 2019, a new protocol was implemented based on literature which encourages the preventative use of benzodiazepine alternatives based on PAWSS. The purpose of this study is to determine whether introduction of a benzodiazepine-sparing protocol is non-inferior to the previous alcohol withdrawal syndrome protocol by reviewing and quantifying the utilization of benzodiazepines before and after transitioning to the benzodiazepine-sparing protocol.

METHODOLOGY: In this retrospective, single-center cohort study, eligible patients were those who screened positive for alcohol use via a positive lab or provider screen for alcohol use or an ICD code for Alcohol Use Disorder and were admitted to a trauma service. We also included patients who had utilized one of the alcohol withdrawal syndrome protocols during their hospital stay. Patients were excluded if they were <18 years old, incarcerated, pregnant, or utilized benzodiazepines at home. The study has been divided into two arms based on the date of protocol implementation into Epic systems at our institution, and outcomes of interest include lorazepam milligram equivalents, hospital and ICU length of stay, ventilator days, and CIWA-Ar scores.

PRELIMINARY RESULTS: The preliminary results suggest a reduction in lorazepam milligram equivalents per patient per hospital stay with the implementation of the benzodiazepine-sparing protocol. These findings are in concert with the increased withdrawal rates noted in the benzodiazepine-utilizing protocol group. There were also significant reductions in the number of ventilator days in the benzodiazepine-sparing protocol group. The data collection is an ongoing process, and therefore, final conclusions are pending.

R Assessment of 23.4% Sodium Chloride Addition to Automated Dispensing Cabinets on Time to Administration

Room D

Presenters: Juliette Miller

Link to presentation: https://youtu.be/HMVVM_VVceM

TITLE: Assessment of 23.4% Sodium Chloride Addition to Automated Dispensing Cabinets on Time to Administration

AUTHORS: Juliette Miller, Tim Robinson, Jennifer Waller, Lindsey Sellers

OBJECTIVE: Identify whether addition of 23.4% sodium chloride to the trauma and neurology intensive care unit (ICU) automated dispensing cabinets (ADCs) decreases the time to administration of the first dose of 23.4% sodium chloride.

SELF ASSESSMENT QUESTION: Does the addition of 23.4% sodium chloride to automated dispensing cabinets in the trauma and neurology intensive care units decrease time to administration of the first dose?

BACKGROUND: Cerebral edema is a medical emergency that requires urgent treatment with hyperosmolar therapy. At one institution, 23.4% sodium chloride was added to the trauma and neurology ICU ADCs on February 1, 2020. The purpose of this study is to determine whether addition of 23.4% sodium chloride to ADCs decreases time to 23.4% sodium chloride administration.

METHODOLOGY: This single-center, retrospective review included patients ≥ 18 years receiving 23.4% sodium chloride in the trauma or neurology ICUs between January 2, 2019 and February 28, 2021. The pharmacy cohort included patients receiving 23.4% sodium chloride prior to February 1, 2020 and were compared to those who received it from the ADCs. Two-sample t-tests, chi-square tests, and descriptive statistics were used.

RESULTS: A total 31 patients were included. The mean time to administration in minutes was 30.6 for the ADC group and 36.8 for the pharmacy group ($P=0.4818$). Time to verification was similar (6.3 vs 6.7; $P=0.9152$). Of the 17 who had documented ICPs, only 2 in the ADC group did not meet the ICP goal <20 mmHg ($P=0.0735$). There were no documented extravasation events, and the incidence of hypotension and vasopressor use were higher with the pharmacy group ($P=0.2396$, $P=0.2550$).

CONCLUSIONS: This study did not meet power due to a drug shortage that depleted drug supply for about six months. There was a trend toward a lower time to ICP <20 mmHg with the ADC group. Other limitations include the retrospective design and possible inaccuracy with documentation of administration time. These results suggest there is no harm with addition to ADCs. Further research could confirm the benefits of adding 23.4% sodium chloride to ADCs on time to administration.

R Total versus ideal body weight-based sepsis fluid bolus strategies in patients with and without reduced ejection fraction congestive heart failure

Room C

Presenters: Kaitlyn Claybrook

TITLE: Total versus ideal body weight-based sepsis fluid bolus strategies in patients with and without reduced ejection fraction congestive heart failure

AUTHORS: Kaitlyn Claybrook, Pharm.D.; William Johnson Pharm.D., BCCCP; Alanna Rufe, Pharm.D.; Nancy Bailey, Pharm.D., BCPS; Terry Harris, Pharm.D., BCPS

OBJECTIVE: Identify strategies to fulfill Center for Medicare and Medicaid Services (CMS) sepsis bundle requirements while decreasing fluid bolus calculations.

SELF ASSESSMENT QUESTION: What is the current CMS mandated fluid bolus amount and in what time frame?

BACKGROUND: The primary objective of this study is to assess the differences in clinical outcomes between patients with and without heart failure who are weight-based, fluid-resuscitated in sepsis utilizing total body weight (TBW) or ideal body weight (IBW). The Center for Medicare and Medicaid Services (CMS) accepts both TBW and IBW based sepsis fluid resuscitation and literature is currently sparse regarding outcomes of this practice.

METHODOLOGY: This study was a retrospective chart review utilizing the electronic medical record. Patients with heart failure and sepsis that received a fluid bolus were placed into a study group of either TBW or IBW based fluid bolus. Patients without heart failure that received a sepsis fluid bolus were placed into study groups of either TBW or IBW based fluid bolus.

RESULTS: The primary outcome of length of stay was not found to be significant between cohorts. A secondary outcome that was found to be significant was ICU length of stay between the non-heart failure TBW and IBW bolus groups (4.4 vs 2.9 days, p-value 0.04136). Outcomes that trended significantly were ICU admission and 90-day readmission between non-heart failure TBW and IBW sepsis groups. A statistically significant difference existed in aggregate between non-heart failure and heart failure groups indicating increased morbidity and mortality in the setting of heart failure and sepsis regardless of fluid bolus amount received.

CONCLUSIONS: Using IBW to calculate fluid bolus amounts in patients with sepsis and without heart failure could decrease ICU length of stay. Additionally, future studies could be conducted specifically powered to assess ICU admission and 90-day hospital readmission.

I A Retrospective Analysis of COVID-19 Impact on Pediatric Immunization Adherence

Room I

Presenters: Kara Metowski

TITLE: A Retrospective Analysis of COVID-19 Impact on Pediatric Immunization Adherence

AUTHORS: Kara Metowski, Kristen Turner, Miles Lane, Erica Rubin

OBJECTIVE: Identify if COVID-19 had an impact on adherence to pediatric immunizations

SELF ASSESSMENT QUESTION: Has the COVID-19 pandemic impacted vaccine adherence?

BACKGROUND: The Center for Disease Control (CDC) reported decreased immunization ordering and administration for the pediatric population since the start of the COVID-19 pandemic. The objective of this project was to assess the impact of COVID-19 on adherence to pediatric immunizations.

METHODOLOGY: This retrospective cohort study evaluated immunization adherence of children that were attributed a single provider group within a community-based teaching hospital in two time periods; pre-COVID and post-COVID. The pre-COVID time period was defined as March 22nd, 2019 – September 22nd, 2019 and the post-COVID time cohort was March 22nd, 2020 – September 22nd, 2020. Adherence was assessed through retrospective chart review to the following childhood vaccines: hepatitis B, diphtheria, tetanus, acellular pertussis (DTaP), inactivated polio virus (IPV), varicella, measles, mumps, and rubella (MMR), pneumococcal conjugate (PCV), and haemophilus influenzae B (Hib). Adherence was defined as receiving an immunization within one month of its due date. Patients were identified in the electronic health record by age. Other demographic information abstracted from the electronic health record included gender, race, and payor.

RESULTS: There were no statistically significant differences in the baseline characteristics of gender or race between the pre-COVID and post-COVID cohorts. There were 245 children with immunization opportunities in the pre-COVID cohort and 253 children in the post-COVID cohort. The pre-COVID immunization adherence rate was 72% compared to the post-COVID cohort adherence rate of 51%, which was found to be a statistically significant difference.

CONCLUSIONS: The study revealed a lower vaccine adherence rate in the pre-COVID cohort compared to the post-COVID cohort. This could lead to erosion of herd immunity for previous vaccine preventable diseases in the pediatric population.

Presentation Link: <https://www.youtube.com/watch?v=Gghs3YnHhc0>

Presenters: Erin Creasy

TITLE: Comparison of multiple dose long-acting lipoglycopeptides in a hospital-owned infusion clinic

AUTHORS: Erin Creasy, Samantha Rustamov, Madeline Belk, Macy Wigginton, Jonathan Edwards

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the clinical, safety, and economic outcomes of oritavancin versus dalbavancin therapy in a hospital-owned infusion clinic.

SELF ASSESSMENT QUESTION: What considerations should be made when evaluating novel outpatient antimicrobial therapies in a hospital-owned infusion clinic?

BACKGROUND: The purpose of this study is to determine the optimal long-acting lipoglycopeptide based on a review of clinical, safety, and economic findings when multiple dose regimens are prescribed.

METHODOLOGY: A literature review was conducted to identify any related clinical, safety, or economic evaluations of multiple dose oritavancin or dalbavancin regimens in the outpatient setting. A retrospective chart review and medication use evaluation was conducted to collect clinical, safety, and economic data for patients receiving multiple doses of either oritavancin or dalbavancin from September 2015 to June 2020. Data was evaluated globally and at a patient specific level in order to determine the most optimal agent for the hospital-owned infusion clinic. The findings and conclusions were presented as a recommended action item to various committees within the health system for consideration.

RESULTS: Of the 102 patients included, 73 (71.6%) patients received oritavancin and 29 (28.4%) patients received dalbavancin. The most common indications in both groups were osteomyelitis, cellulitis and prosthetic joint infections. All-cause 30-day readmission rates were numerically less in the dalbanvain group versus the oritavancin group.

Adverse drug reactions occurred at a rate of 2.8% in the oritavancin group compared to 0.0% in the dalbavancin group. The economic margin evaluation in the non-340 B setting favored oritavancin, whereas dalbavancin is favored in the 340 B setting based on the margin evaluation and patient assistance program benefits.

CONCLUSIONS: In progress

Presenters: Andrea Ampuero

TITLE: Evaluation of Antimicrobial Stewardship Practices at the Salisbury Veterans Affairs Health Care System (SVAHCS) Community Living Center (CLC)

AUTHORS: Andrea Ampuero, Brittany Melville, Bailey Guest

OBJECTIVE: Evaluate the effectiveness of pharmacist-led antimicrobial stewardship interventions at the SVAHCS CLC

SELF ASSESSMENT QUESTION: What antimicrobial stewardship interventions do pharmacists perform in the SVAHCS CLC?

BACKGROUND: Antimicrobial stewardship programs (ASP) have shown improvement in patient outcomes, reduction of antimicrobial adverse events and a decrease in antimicrobial resistance in hospitals. There is limited evidence available quantifying the impact of pharmacist-led ASP interventions in long term care facilities. The purpose of this project is to evaluate the effectiveness of antimicrobial stewardship interventions completed at the SVAHCS CLC.

METHODOLOGY: This is a retrospective quality improvement project. Eligible subjects included Veterans residing in the SVAHCS CLC to which an ASP intervention was proposed from May 1, 2018 to January 31, 2021. The primary objective is to determine the effectiveness of ASP interventions in the CLC. Secondary objectives include to assess safety of select implemented CLC ASP interventions and determine cost savings of the implemented ASP interventions.

RESULTS: A total of 379 interventions were included in this project. Of these interventions, 370 were accepted (98%), 5 were accepted with modification (1%) and 4 were rejected (1%). The indication for which the most interventions were performed was osteomyelitis. Vancomycin was the most common antimicrobial for which interventions were performed. Of the 131 interventions assessed for safety, 1 Veteran experienced an adverse drug event (ADE) within 30 days of the intervention including nephrotoxicity and Clostridioides difficile infection. There was a total cost savings of \$102,059.

CONCLUSIONS: This study demonstrates that pharmacist-led ASP interventions proposed in the SVAHCS CLC were effective with a high rate of acceptance. These interventions resulted in a low rate of ADEs and cost savings for the facility.

Link to Recording: Evaluation of Antimicrobial Stewardship Practices at the SVAHCS CLC - YouTube

Presenters: Reem Ghandour

TITLE: Impact of Pharmacist Intervention on the Appropriate Prescribing of Fentanyl Patches

AUTHORS: Reem M Ghandour, Ambra Hannah, Kimm Freeman

OBJECTIVE: Assess the impact of pharmacist intervention on the appropriateness of fentanyl patch prescribing based on patient-specific factors

SELF ASSESSMENT QUESTION: Does pharmacist intervention positively impact appropriate fentanyl patch prescribing?

BACKGROUND: The purpose of this study was twofold. First, we evaluated the impact of pharmacist interventions on the appropriate prescribing of fentanyl patches within the Wellstar Health System. Second, we assessed the effectiveness of a policy revision requiring that pharmacists verify and document the appropriateness of fentanyl patch prescribing during order verification. This is in recognition of the severe adverse-event profile of fentanyl patches as recognized by the Institute for Safe Medication Practices (ISMP).

METHODOLOGY: Data was collected through a multicenter retrospective chart review of adult patients initiated on fentanyl patches at Wellstar hospitals from January 1, 2020, to January 31, 2021. Patients were included if they (1) received an initial fentanyl patch for non-cancer and sickle cell pain, (2) were not receiving hospice or palliative care services, and (3) were admitted to inpatient areas or the emergency department. The primary endpoint was the number of appropriate fentanyl patch orders that had pharmacist intervention. Secondary endpoints included (a) the percentage of pharmacist interventions that were compliant with the documentation requirements and (b) the percentage of appropriate fentanyl patch orders

RESULTS: Pre-policy revision, pharmacists intervened in 12 out of 72 fentanyl patch orders. When pharmacists intervened, 58% of orders (i.e., 7/12) were appropriately prescribed ($p=0.10$). Post-policy revision, pharmacists intervened in 5 out of 16 fentanyl patch orders and none of the five orders were appropriately prescribed ($p=0.09$). However, there was an increase in pharmacist documentation post-policy revision – bringing the compliance rate to 31.25% (i.e., 5/16) vs. 17% (i.e., 12/72) pre-revision.

CONCLUSIONS: The study's findings remain inconclusive due to lack of statistical significance. This seems to be primarily driven by the insufficient sample size across both arms. However, these initial findings suggest that pharmacist interventions are likely to have a positive impact on appropriate fentanyl patch prescribing.

Presenters: Akhilesh Sivakumar

TITLE: Impact of gabapentin and pregabalin use during high-dose melphalan conditioning in patients undergoing an autologous hematopoietic cell transplant

AUTHORS: Akhilesh Sivakumar, Evan Bryson, Kevin Hall, Kathryn Maples, R. Donald Harvey, Subir Goyal

OBJECTIVE: Evaluate the safety of concomitant pregabalin or gabapentin use in patients undergoing ASCT with high-dose melphalan conditioning.

SELF ASSESSMENT QUESTION: Do ASCT patients who receive gabapentin or pregabalin within 24 hours of high-dose melphalan experience increased toxicity from the conditioning regimen?

BACKGROUND: Melphalan is an alkylating agent used prior to autologous (ASCT) stem cell transplantation. It is transported in the body by the L-type amino acid transporter-1 (LAT-1) and LAT-2, which may be involved in both tissue penetration and excretion of the agent. Gabapentin and pregabalin are common concomitant medications in patients undergoing ASCT. These agents also utilize LAT transporters, raising concern for competitive inhibition of melphalan transport. The purpose of this study was to determine whether concurrent use of gabapentin or pregabalin in patients receiving high-dose melphalan (≥ 140 mg/m²) affected safety of the conditioning regimen.

METHODOLOGY: This was a single-center, retrospective chart review including patients ≥ 18 years of age who received melphalan prior to ASCT at Winship Cancer Institute of Emory University from 8/1/2010 to 4/1/2020. Patients were excluded if they received concomitant levodopa, methylodopa, or baclofen within 24 hours of melphalan. After inclusion of patients who received gabapentin or pregabalin plus melphalan, patient matching based on age, sex, and melphalan dose was utilized to generate an equally matched cohort of patients who received melphalan alone. The primary outcome of this study was hospital length of stay.

RESULTS: There were 176 patients each in the melphalan plus gabapentin or pregabalin and melphalan alone groups. In both groups, median hospital LOS was 16 days ($p=0.981$), median time to neutrophil engraftment was 14 days ($p=0.829$), and median time to platelet engraftment was 16 days ($p=0.289$). There were no statistically significant differences in supportive care needs between groups.

CONCLUSIONS: Co-administration of gabapentin or pregabalin with melphalan appears safe without any compromise in safety of the conditioning regimen.

Presenters: Casey Wells

TITLE: Development of a Medication Access Program in a Family Medicine Practice

AUTHORS: Casey Wells, Laura Bailey, Rebecca Grandy

OBJECTIVE: To describe the development of a medication access program at Mountain Area Health Education Center (MAHEC) Family Medicine

SELF ASSESSMENT QUESTION: What is an effective way to complete medication access consults in Family Medicine Clinics?

BACKGROUND: MAHEC focuses on primary care in rural communities. Between one-third and one-half of the pharmacy consults in our electronic health record are related to medication cost. Due to a growing need for medication assistance, the current PGY1 resident collaborated with family medicine staff to develop a medication access program.

METHODOLOGY: Eighteen half-days of resident clinic were dedicated to development of a medication access program over the first semester. Initially, state resources and collaborative regional partners were identified. In conjunction with clinical leadership within family medicine, we developed a workflow for medication assistance triaging based on acuity and duration of medication need. Next, patients were contacted to assess program eligibility. We developed a standardized process for referral, enrollment, documentation and follow-up. Students were added to the workflow for layered learning opportunities which included navigating the barriers associated with underserved patients.

RESULTS: Seven primary types of consults were completed: manufacturer assistance program applications (N=31), state-level assistance applications, community-level referrals, Medicare low income subsidy applications, coupon or discount program identification, de-prescribing or formulary switch, and care management referrals. The value of medications obtained was estimated at \$186,031. Systems created by the pharmacy resident led to the funding of a pharmacy technician position to coordinate the medication access program.

CONCLUSIONS: Medication access is an important component of primary care services. The development of a medication access program resulted in over 30 patients receiving help on with the cost of their medications in a 3-month period and justified the creation of a full time pharmacy technician position to coordinate the program.

Presenters: Kruti Patel

TITLE: THE IMPACT OF PHARMACIST INTERVENTION ON SHINGRIX VACCINATION RATES AT AN INDEPENDENT COMMUNITY PHARMACY

AUTHORS: Kruti Patel, Spencer Durham

OBJECTIVE: State if pharmacists can improve the rate of completed Shingrix vaccine series.

SELF ASSESSMENT QUESTION: What can community pharmacists do to increase vaccination rates?

BACKGROUND: Vaccination is a cost-effective method of avoiding preventable diseases and associated complications. Despite the availability of highly efficacious and tolerable vaccines, low immunization rates have caused the burden of vaccine-preventable diseases to persist. Pharmacist education of patients has shown to positively impact vaccination rates via face-to-face interactions and promotional materials. The purpose of this quality improvement project is to evaluate the impact of pharmacist education via telephone interaction on rates of Shingrix vaccine series completion.

METHODOLOGY: Patients were identified using reports generated by the QS1 dispensing software for 5 stores of an independent pharmacy corporation. Patients were included if they had received the first dose of the Shingrix vaccine within one year from the date of report. Those eligible for the second dose of Shingrix who had not received it elsewhere were counseled on the health benefits of completing the series and encouraged to return for dose two. Outcomes included number of patients that completed the series at pharmacy prior to contact, completed the series elsewhere, were unable to be reached entirely, received voicemails, were not due for a second dose at the time of report review, were successfully contacted and educated, and that returned to pharmacy after contact to receive the second dose.

RESULTS: 256 patient profiles were reviewed for three of five stores. The three stores had four, five, and four patients that were contacted and educated. The rate of return for dose two was 100%, 100%, and 50% for the three stores, respectively.

CONCLUSIONS: Pharmacist education via telephone interaction can improve the rate of completed Shingrix vaccine series at community pharmacies.

Presenters: Grant Teague

TITLE: Evaluation of implementation of intravenous push antibiotics in the emergency department

AUTHORS: Grant Teague, Jonathon Pouliot

OBJECTIVE: Evaluate operational and clinical outcomes after implementation of intravenous push dosing of antibiotics in the ED

SELF ASSESSMENT QUESTION: What class of antibiotics has shown to be safe and effective when administered via IV push?

BACKGROUND: Many beta-lactams have shown to be safe and effective when administered via intravenous (IV) push. Administration via IV push has shown to have operational and economic benefits, including potentially improving compliance to the CMS 3-hour sepsis bundle. Reducing exposure to COVID-19 and reducing the use of personal protective equipment (PPE) is another timely advantage of IV push administration of antibiotics.

METHODOLOGY: This study is a single-center, retrospective cohort with a historical comparison. Reports from an electronic health record will be used to identify patients > 18 years old who were administered one of the study IV antibiotics, including piperacillin/tazobactam 4.5 grams, cefazolin 1-2 grams, cefoxitin 2 grams, ceftriaxone 1 gram, cefepime 1 gram, meropenem 1 gram, and aztreonam 1 gram, while in the adult ED at a community hospital. This community hospital implemented the IV push antibiotics in the ED initiative in September of 2020, so the control group is those patients who presented prior to implementation, September 2019 to December 2019. The experimental group is those patients who presented after implementation, September 2020 to December 2020.

RESULTS: There was a slight increase in time from diagnosis to antibiotic administration in the post-implementation group. Secondary endpoints also showed an increase ED length of stay and total antibiotic administration time in the post-implementation group. Overall compliance to the CMS sepsis bundle improved by about 14% in the post-implementation group and antibiotic administration improved from 96.6% to 100% compliance. IV push antibiotics resulted in annual cost savings of \$20,645 over traditional IV infusion. 30% of nurses felt that the new protocol reduced the time it took them to administer the antibiotic while another 30% did not perceive any benefit to switching to IV push antibiotics.

CONCLUSIONS: The implementation of IV push antibiotics in the ED results in a significant cost reduction and ease in the administration process as compared to traditional IV infusion. Due to the limitations of the research, additional analysis would be beneficial when process changes due to COVID-19 have returned to normal and the IV push antibiotic protocol has been finalized.

Presenters: Mary Stewart Leatherwood

TITLE: Levetiracetam use after spontaneous intracerebral hemorrhage

AUTHORS: Mary Stewart Leatherwood, Leslie A. Hamilton, A. Shaun Rowe

OBJECTIVE: Describe the significance of the present study in the context of previous studies assessing seizure prophylaxis in spontaneous ICH.

SELF ASSESSMENT QUESTION: Does current evidence warrant seizure prophylaxis in patients with spontaneous ICH?

BACKGROUND: To assess the incidence of seizures in patients with intracerebral hemorrhage (ICH) who received prophylactic levetiracetam.

METHODOLOGY: This retrospective cohort study included patients treated for ICH. Patients were excluded if they were < 18 years of age, had a documented history of a seizure disorder, or had an antiepileptic drug on their home medication list. Patients were dichotomized by their exposure to levetiracetam as seizure prophylaxis. The primary outcome was occurrence of seizure during hospitalization for ICH. Secondary outcomes include occurrence of adverse events, ICU length of stay (LOS), and hospital LOS.

RESULTS: No difference was found in incidence of seizures between groups [4.8% (n=3) LEV vs. 1.4% (n=1) No LEV, p=0.32]. Overall incidence of seizures was low at 1.4% across the entire cohort. No difference was seen in ICU length of stay, hospital length of stay, or occurrence of adverse events.

CONCLUSIONS: Although levetiracetam use as seizure prophylaxis in ICH is likely not harmful, it does not decrease incidence of seizures and is likely not necessary.

Presenters: Courtney Reddig

TITLE: Preoperative Oral Methadone versus Intravenous Methadone Use in Cardiac Surgery

AUTHORS: Courtney Reddig, Lindsay Reulbach, Caroline McKillop, Alex Ewing, Lyndsay Gormley

OBJECTIVE: Identify the role of perioperative oral methadone in cardiac surgery

SELF ASSESSMENT QUESTION: How does the pharmacokinetic profile of methadone differ from other opioids?

BACKGROUND: Traditionally, shorter-acting opioids are administered perioperatively and as repeat boluses after cardiac surgery, which can lead to fluctuating opioid concentrations. A single dose of perioperative intravenous methadone can reduce postoperative analgesic requirements. Oral methadone has a similar pharmacokinetic profile, however limited data exists evaluating its use for postoperative pain management. The purpose of this study was to determine if perioperative oral methadone is noninferior to intravenous methadone at reducing postoperative morphine milligram equivalent (MME) requirements following cardiac surgery.

METHODOLOGY: This study was a single-center, retrospective, pre-and-post analysis evaluating patients undergoing cardiac procedures requiring cardiopulmonary bypass. Patients who received either intravenous methadone between November 2019 and May 2020 or oral methadone between August and December 2020 were included in the analysis. The primary outcome was 24-hour postoperative MME requirements. Secondary outcomes included postoperative pain scores, MME requirements at 48 and 72 hours postoperative, and time until extubation.

RESULTS: A total of 20 patients were included in the intravenous methadone group and 48 in the oral methadone group. Median 24-hour postoperative MME use was 26.25 in the intravenous methadone group and 28.75 in the oral methadone group (p=0.575). There were no significant differences between any secondary outcomes.

CONCLUSIONS: There was no significant difference observed in postoperative MME requirements or pain scores between oral and intravenous methadone. Oral methadone remains a suitable alternative to intravenous methadone to help mitigate opioid use following cardiac surgery.

Presenters: Sarah Sheahon

TITLE: Antimicrobial Stewardship in Medical Oncology

AUTHORS: Sarah Sheahon, Megan Freeman, Sarah Murphy, Victoria Woolley

OBJECTIVE: To assess appropriate empiric antibiotic use retrospectively and intervene prospectively with real time feedback to provide appropriate clinical guideline recommendations.

SELF ASSESSMENT QUESTION: What processes can we put into effect to encourage appropriate empiric antimicrobial agent selection and to de-escalate when clinically necessary? How can we encourage appropriate duration of therapy?

BACKGROUND: Antimicrobial resistance is of particular concern to cancer patients because the ability to prevent and cure infection is a cornerstone of cancer therapy. Although pharmacy currently monitors the use of antimicrobials, there are still limited processes in place to prevent antimicrobial resistance with inappropriate antibiotics usage. The purpose of this evaluation is to assess appropriate empiric antibiotic use retrospectively and intervene prospectively with real time feedback to provide appropriate clinical guideline recommendations.

METHODOLOGY: A retrospective chart review was performed from March 2019—March 2020 on oncology patients prescribed antibiotics for pneumonia, febrile neutropenia and UTI. Data was analyzed for appropriate antibiotic selections and will be compared to post implementation data.

RESULTS: 105 patients were reviewed retrospectively. Overall, suboptimal empiric antibiotics were selected in 42% of diagnoses. Of those 105 patients, 49% had suboptimal durations of therapy. Antibiotic selection was not optimized in 54% (19) of patients diagnosed with pneumonia, 47% (15) of patients diagnosed with UTI, and 26% (9) of patients diagnosed with febrile neutropenia. Duration of therapy was not optimized in 66% (21) of patients with pneumonia, 41% (14) of patients with UTI, and 43% (15) of patients with febrile neutropenia.

CONCLUSIONS: Pre-implementation data suggests the need for real-time interventional feedback and prospective data collection. Overall, suboptimal empiric antibiotics were selected in 42% of diagnoses. Of those 105 patients, 49% had suboptimal durations of therapy.

Presenters: Alexandria Martin

TITLE: Outcomes Related to Coronavirus 19 Infection in a Community Hospital

AUTHORS: Alexandria Martin and Mary Perez

OBJECTIVE: Identify the risk factors for having worse outcomes with COVID-19

SELF ASSESSMENT QUESTION: Which of the following are risk factors for having more negative outcomes if infected with COVID-19?

BACKGROUND: Evaluate outcomes of patients with confirmed diagnosis of COVID-19 in a community hospital.

METHODOLOGY: Retrospective chart review of inpatients currently admitted to Ascension St. Vincent's Birmingham from April through September 2020 with COVID-19 infection. Primary outcome is the change in patient's care at discharge compared to admission. Secondary outcomes include hospital and ICU length of stay, oxygen requirement, ventilator days, tracheostomy placement, and ECMO initiation along with ARDS or thrombus diagnosis. Other outcomes include an analysis of the primary outcome based on comorbidities, ethnicity, specific treatments, and oxygen requirements.

RESULTS: 405 patients were evaluated in this study. 61.8% of patients had no change in level of care at discharge while 20.3% had an escalation of care and 17.9% expired. Mortality was disproportionately higher in the Hispanic population as well as those presenting from a LTAC. Increased oxygen requirements were associated with worse outcomes. Steroids were the therapy associated with greatest benefit at discharge with 55% no change in care, 23.9% escalation of care and 21.1% expired. Average length of stay in ICU and hospital was 15.3 and 12.5 days respectively.

CONCLUSIONS: In our patients, the majority survived with no changes in level of care at discharge. There was a higher mortality rate noted in the Hispanic population as well as patients who presented from a LTAC. Higher level of oxygen requirements was associated with an increased need for escalation of care at discharge, while steroids were associated with better outcomes.

<https://youtu.be/57i7M0cdtvI>

Presenters: Y. Vivian Tsai

TITLE: Predictive Factors for Treatment Success in Patients with Nontuberculous Mycobacterial Infections

AUTHORS: Y. Vivian Tsai, P. Brandon Bookstaver

OBJECTIVE: List potential factors that can influence treatment outcome in patients with NTM infections.

SELF ASSESSMENT QUESTION: What are the factors associated with successful treatment outcomes in patients with NTM infections?

BACKGROUND: Nontuberculous Mycobacterial (NTM) infections are associated with significant morbidity and mortality and often require protracted courses of antibiotics. The purpose of this study is to identify predictors of favorable treatment outcomes in patients with NTM infections.

METHODOLOGY: This was a retrospective, single-center, observational cohort study at Prisma Health Midlands that included patients at least 18 years of age with a positive culture for an NTM species from January 1, 2010 to June 30, 2020. Patients were excluded if they had a concurrent *M. tuberculosis* infection or a monomicrobial culture positive for *M. gordonae*. The primary endpoint of favorable treatment outcomes is defined as successful completion of prescriber-intended treatment course without death, rehospitalization or reinfection at 1 year. Multivariate logistic regression analysis will be used to assess factors associated with a favorable treatment outcomes. Frequency of and reasons for antibiotic regimen changes will be described.

RESULTS: A total of 290 patients were screened for study eligibility. Of these, 78 patients were included for analysis of study endpoints. Forty-seven patients (60.3%) had a favorable treatment outcome. The cohort consisted mainly of non-hispanic caucasian individuals with pulmonary NTM infections. Baseline demographics were similar between two groups, except the unfavorable group consisted of higher proportion of individuals who are underweight, uninsured, and with history of asthma and prior TB treatment. *MAC* and *M. abscessus* were the most common organisms observed. Univariate analysis showed that antibiotic changes, uninsured, underweight, and history of asthma were factors that could influence treatment outcome. However, multivariate regression analysis demonstrated that individuals who had private insurance and had antibiotic changes not due to escalation or de-escalation of therapy were 6 times and 8 times more likely to have a favorable outcomes than those who didn't, respectively. Sixty-five percent of the cohort had a antibiotic change. The most common reasons include: adverse drug reaction (42.3%), susceptibility (16.7%), and treatment optimization (9%). Susceptibility data revealed that first-line agents remained highly susceptible to *MAC*, but suboptimal against *M. abscessus*.

CONCLUSIONS: The management of NTM infection consisted of complex drug regimen, involving multiple antibiotic changes which increased risk for unwanted side effects. This study demonstrated that private insurance and antibiotic changes not due to therapy escalation or de-escalation are factors that could favor a successful treatment outcome in patients with NTM infections. Collaboration between ID pharmacists and physicians in managing antibiotic regimen for such complex patient population is warranted in order to reduce the risk for antibiotic resistance and adverse drug reactions while increasing patient adherence and improving overall prognosis

<https://www.youtube.com/watch?v=GXOn5PmyPeA&feature=youtu.be>

L Inpatient length of stay associated with the use of varied glucocorticoid doses for the treatment of chronic obstructive pulmonary disease exacerbations

Presenters: Holly Loyd

TITLE: Inpatient length of stay associated with the use of varied glucocorticoid doses for the treatment of chronic obstructive pulmonary disease exacerbations

AUTHORS: Holly Loyd, Pharm.D.; Leborah Cole Lee, Pharm.D., BCPS; Catelin Fulghum, Pharm.D., BCPS; Nancy Bailey, B.S., Pharm.D., BCPS

OBJECTIVE: Assess the outcomes with higher glucocorticoid doses in patients admitted for COPD exacerbation.

SELF ASSESSMENT QUESTION: What is the appropriate glucocorticoid dose for treating mild to moderate COPD exacerbations?

BACKGROUND: Systemic glucocorticoids are a common cause for hyperglycemia and associated complications. Per the 2020 Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines, the recommended therapy for chronic obstructive pulmonary disease (COPD) exacerbations is prednisone 40mg daily for 5 days. However, glucocorticoid prescribing habits vary amongst providers. This study aims to identify a correlation between varied glucocorticoid doses and length of stay for the inpatient treatment of COPD exacerbations.

METHODOLOGY: An IRB-approved, retrospective cohort chart review was conducted utilizing electronic health records. Patients were identified if admitted for COPD exacerbation in 2019 requiring glucocorticoid treatment during hospitalization. Patients were excluded if they did not remain in the hospital for at least 24 hours and/or had a non-COPD pulmonary disorder such as asthma or pneumonia, patients in an immunocompromised state, had any oral glucocorticoid within one week prior to admission, surgery/NPO, had an insulin pump, pregnant/lactating, and/or in acute respiratory failure requiring ventilator support on admission. An average total dose per day and per stay of glucocorticoid was calculated for each patient using methylprednisolone equivalence. Descriptive statistics was utilized for patient demographic data. Outcomes were analyzed using data-appropriate correlation tests.

RESULTS: A total of 180 patients were included in this study. The average total dose of glucocorticoid received per stay was 486mg and 114mg per day. Ninety-five percent of patients received higher than the guideline-recommended dose of 40mg daily for 5 days. There was a statistically significant weak negative correlation between average daily dose and length of stay ($r = -0.2189$; $p < 0.05$). Statistically significant correlations between readmissions at 30 days and 90 days were not found.

CONCLUSIONS: Glucocorticoid doses above guideline recommendations did not meaningfully correlate with decreased length of stay or decreased rate of readmission at 30- or 90-days.

Link: <https://vimeo.com/538885034>

○ **Survival and Safety Outcomes of Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (R-CHOP) Regimens in Elderly Patients with Diffuse Large B-Cell Lymphoma (DLBCL)** Room A

Presenters: S. Jack Dierckes

TITLE: Survival and Safety Outcomes of Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (R-CHOP) Regimens in Elderly Patients with Diffuse Large B-Cell Lymphoma (DLBCL)

AUTHORS: Stephen J Dierckes, Brandi Anders, Rakhee Vaidya, LeAnne Kennedy

OBJECTIVE: To evaluate overall survival (OS), treatment response, and tolerability of R-CHOP based regimens in patients 70 years of age and older and determine the patient and disease characteristics that drove choices of regimen.

SELF ASSESSMENT QUESTION: What patient and disease characteristics prompt providers to utilize full-dose versus attenuated R-CHOP regimens in the treatment of DLBCL, and which regimen is most appropriate in elderly patients 70 years of age and older?

BACKGROUND: Non-Hodgkin Lymphoma is one of the most prevalent cancer types in the United States with DLBCL being the most common subtype. The R-CHOP treatment regimen has been shown to be beneficial across a variety of patients including young patients with good overall prognosis as well as elderly patients. R-Mini-CHOP is a dose-attenuated regimen that has been primarily studied in those >80 years of age, with lower rates of long-term survival but better tolerability. However, as life expectancy has increased, so has the average age of diagnosis, with patients most frequently diagnosed with DLBCL between 60 and 74 years of age. Optimal treatment for those > 70 years of age is unclear and is a balance of patient tolerability and goals of care.

METHODOLOGY: This observational, single-center, retrospective chart review included patients > 70 years of age diagnosed with DLBCL who received an R-CHOP based regimen as first line therapy between January 1, 2013 and July 1, 2020. Patients were analyzed in a group cohort and individual cohorts based on full-dose or dose-attenuated R-CHOP. The primary outcome was OS in months across all patients, with secondary endpoints across both cohorts including OS at 2 years, overall response rate, progression free survival, and progression to second line therapy. Secondary and safety outcomes were collected for all patients. An analysis was conducted to delineate the patient and disease characteristics that drove treatment choices.

RESULTS: In progress.

CONCLUSIONS: In progress.

Link: https://www.youtube.com/watch?v=dQR0ZSD_kqE

B Impact of Curbside Warfarin Monitoring on Appointment Attendance and Patient Satisfaction at an Urban Outpatient Clinic during the COVID-19 Pandemic

Room J

Presenters: Kathleen Macalalag

TITLE: Impact of Curbside Warfarin Monitoring on Appointment Attendance and Patient Satisfaction at an Urban Outpatient Clinic during the COVID-19 Pandemic

AUTHORS: Kathleen Macalalag, Carrington Royals, Jessica King, Autumn Mittleider, Erika McClain

OBJECTIVE: Describe the impact of curbside INR visits on appointment attendance and patient satisfaction.

SELF ASSESSMENT QUESTION: What are some benefits of curbside INR services offered during the COVID-19 pandemic?

BACKGROUND: The current COVID-19 pandemic can instill fear in patients, causing them to cancel warfarin monitoring appointments to reduce their risk of exposure to the virus. Curbside warfarin visits minimize patient contact with others and ensure close monitoring of INRs. The purpose of our study is to assess patient satisfaction with curbside INR testing and attendance at warfarin monitoring appointments prior to and following the implementation of this service.

METHODOLOGY: This single-centered, historical control study included patients of a family medicine clinic that completed at least one pharmacist-managed curbside INR visit between April 1, 2020 to September 30, 2020. The primary endpoint compared the percent of warfarin monitoring appointments canceled prior to and following curbside INR services. Secondary endpoints included percent of patients with comorbidities that increased risk of infection with COVID-19 who canceled appointments, patient satisfaction, and patient perception of length of curbside visits.

RESULTS: Prior to implementing a curbside INR service, 9.1% of our forty-two patients canceled warfarin monitoring visits compared to 8.9% following implementation ($p=1.00$). Of these canceled appointments, 19.4%, 77.4%, and 3.2% of patients had 3, 1 or 2, or no comorbidities that increased the risk of COVID-19 infection, respectively. Forty-two surveys were completed: 95.2% of respondents were satisfied with our curbside INR service, 2.4% had neutral satisfaction, and 2.4% were dissatisfied. Overall, respondents felt that curbside INR visits were shorter than in-clinic INR visits.

CONCLUSIONS: Curbside INR visits maintained attendance at the pharmacist-led INR monitoring service despite the COVID-19 pandemic. The majority of patients were satisfied with our service and 88.1% of respondents indicated that they would like curbside INR visits to continue after COVID-19 social distancing requirements become less strict.
<https://vimeo.com/538910434>

B PrEP Adherence and Discontinuation at a Pharmacy-Supported PrEP Program in Atlanta, GA

Room K

Presenters: Hiba Yacout

TITLE: PrEP Adherence and Discontinuation at a Pharmacy-Supported PrEP Program

AUTHORS: Hiba Yacout; Bradley L. Smith; Shelbie Foster; Meredith Lora; Larisa V. Niles-Carnes; Suprateek Kundu; Ziduo Zheng; Valeria D. Cantos

OBJECTIVE: Determine PrEP adherence in a newly developed program

SELF ASSESSMENT QUESTION: Did insurance status effect adherence or discontinuation rates in this study?

BACKGROUND: Pre-exposure prophylaxis (PrEP) effectiveness in decreasing HIV transmission is directly correlated with medication adherence. Grady Health System (GHS) developed a pharmacy-supported PrEP program aimed at optimizing PrEP uptake. The purpose of this study is to determine PrEP medication adherence and associated factors of patients enrolled during the first 18 months of the program's implementation.

METHODOLOGY: A single-center, retrospective chart review was conducted on patients enrolled in the GHS PrEP program between June 1, 2018 to February 29, 2020 who received more than one PrEP prescription. Adherence was estimated using the medication possession ratio (MPR). The primary outcome was mean adherence to PrEP.

Secondary outcomes include rate of high percent adherence ($MPR > 80\%$), median time of engagement in care, PrEP discontinuation rates, rates of PrEP re-engagement after discontinuation, individual factors associated with PrEP discontinuation and low adherence, sexually transmitted infection (STI) rates and HIV seroconversion.

RESULTS: This study included 154 patients who were primarily young, black (70.8%), cisgender men (62.3%) and uninsured (59.1%). 51.9% identified as a men who has sex with men. Mean PrEP adherence was 89.2% and 77.3% of patients demonstrated a high rate of adherence. No individual or social factors were associated with low adherence. 53.8% were active in the program at the end of the follow up period. Young age was associated with PrEP discontinuation ($p<0.0061$).

CONCLUSIONS: This pharmacy-supported PrEP program demonstrated high levels of PrEP adherence. Future areas of improvement include optimizing adherence and engagement in care in young populations.

LINK: <https://drive.google.com/file/d/1fF3DiSXAjGdMf60yR6fv3mjLB7IWdaSI/view?usp=sharing>

C Comparison of clopidogrel versus ticagrelor when used as part of triple antithrombotic therapy with aspirin and apixaban

Room D

Presenters: Mitchell Hutson

TITLE: Comparison of clopidogrel versus ticagrelor when used as part of triple antithrombotic therapy with aspirin and apixaban

AUTHORS: Mitchell Hutson, Travis Fleming, Sara Catherine Pearson, Kimberly Keller

OBJECTIVE: At the conclusion of the presentation, the audience should be able to compare outcomes between two common triple antithrombotic therapy regimens.

SELF ASSESSMENT QUESTION: Is there a difference in bleeding or thrombotic events between a clopidogrel-based and ticagrelor-based triple therapy regimen?

BACKGROUND: Triple antithrombotic therapy is necessary for many patients experiencing acute coronary syndromes who have indications for anticoagulation. Although triple therapy is generally temporary, it is crucial to balance the risk of bleeding and thrombosis. Studies have demonstrated ticagrelor to be superior to clopidogrel in preventing thrombosis, however, a recent meta-analysis demonstrated that ticagrelor increases bleeding risk. Additionally, the emergence of apixaban as the most prescribed oral anticoagulant raises even more safety and efficacy questions when it is used as part of a triple antithrombotic regimen.

METHODOLOGY: This study is a single center, IRB approved, retrospective cohort investigating safety and efficacy outcomes between two different triple antithrombotic regimens in patients undergoing coronary stent placement.

Patients with underlying atrial fibrillation, venous thromboembolism, or other coagulopathy necessitating the use of oral anticoagulation who are admitted for acute coronary syndromes or percutaneous coronary intervention between January 1, 2018 and October 1, 2020 will be included. These patients were identified using the Radial/Femoral Left Heart Catheterization Pathway utilized at the medical center and outpatient cardiology databases.

RESULTS: No difference was found in the incidence of thrombosis between patients in the clopidogrel regimen and ticagrelor regimen [41.3% vs. 26.2%, $p=0.0999$]. Similarly, there was no difference in any subset of bleeding or dyspnea between the two groups.

CONCLUSIONS: There is no difference in the rates of thrombosis or bleeding when comparing clopidogrel-based and ticagrelor-based triple antithrombotic therapy regimens when combined with aspirin and apixaban.

Y Pharmacist Perceptions and Willingness to Initiate COVID-19 Point-of-Care Testing in an Independent, Community Pharmacy Setting

Room G

Presenters: Carrie Lynch

TITLE: Pharmacist Perceptions and Willingness to Initiate COVID-19 Point-of-Care Testing in an Independent, Community Pharmacy Setting

AUTHORS: Carrie Lynch, Patricia H. Fabel, Tessa Hastings, Bryan Love, Gene Reeder

OBJECTIVE: Outline potential implementation strategies for COVID-19 point-of-care testing in an independent, community pharmacy.

SELF ASSESSMENT QUESTION: What are the primary reasons for hesitation among independent, community pharmacists when considering point-of-care testing within their practices?

BACKGROUND: Identify implementation strategies for COVID-19 point-of-care testing in independent, community pharmacies based on pharmacists' current perceptions and perceived barriers.

METHODOLOGY: Eligible participants are pharmacists who maintain an active pharmacist license and are currently practicing in an independent, community pharmacy setting. The survey is part of a larger study of South Carolina pharmacists. A 44-item survey was distributed to pharmacist managers in South Carolina by mailing a postcard with a QR code to the online survey. Factors associated with willingness to implement COVID-19 point-of-care testing will be analyzed by differentiating participants into groups based on pharmacist and practice site characteristics and the existence of the Community Pharmacy Enhanced Services Network's (CPESN) required, core services within the practice.

RESULTS: There was a statistically significant correlation between CPESN enhanced pharmacy status and both the patient-related factors and testing follow-up categories (p -value=0.005 and 0.012, respectively). The correlation involving operations-related factors was not statistically significant (p -value=0.494).

CONCLUSIONS: Independent pharmacies seem more equipped to conduct POC testing when compared to chain pharmacies based on CLIA waiver status. However, there is need to improve status across all practice settings. There is a need to develop strategies to implement COVID-19 POC testing within the pharmacy so as to not interfere with daily workflow as this is the biggest concern for pharmacists within this study. Significant correlations were found between enhanced pharmacy status and patient-related and testing follow-up related barriers. Those pharmacies with enhanced services were more likely to report fewer barriers to POC testing implementation.

Presenters: Sarah Lopez

TITLE: Evaluating Different Regular Insulin Doses for the Treatment of Hyperkalemia

AUTHORS: Sarah Lopez, Joseph Crosby, Amanda Bass, Sabrina Croft

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the role of insulin in effectively and safely lowering potassium.

SELF ASSESSMENT QUESTION: What factors may help with the safety of insulin use for lowering high potassium levels?

BACKGROUND: Determine if there is a difference in treatment efficacy and safety outcomes when using ≥ 10 units and < 10 units of regular insulin dosing in the treatment of hyperkalemia.

METHODOLOGY: A retrospective, observational chart review of adult patients seen at St. Joseph's/Candler Health System who experienced hyperkalemia and were treated with insulin from August 2018 to September 2020. Eligible patients were those who were inpatient, ≥ 18 years of age who were not pregnant and had not experienced hypoglycemia from other causes. Key data points were collected in order to determine if patients were treated safely and effectively with either ≥ 10 units or < 10 units of regular insulin in the treatment of hyperkalemia.

RESULTS: Four hundred and three patients were included in the IRB-approved study. Of those, 86% were treated for hyperkalemia received 10 units insulin or more for their first dose and 69% achieved a serum potassium of < 5.4 mg/dL. Of the 14% of patients who received less than 10 units for their first dose, 76% achieved a serum potassium of < 5.4 mg/dL ($p=.272$). The rate of hypoglycemia in patients receiving ≥ 10 units of insulin was 11%, whereas 7% of those receiving < 10 units experienced hypoglycemia ($p=.345$). All patients underwent follow-up potassium and blood glucose checks, with the average potassium check taking place 11 hours after insulin administration and the average blood glucose check taking place 5 hours post-administration.

CONCLUSIONS: Patients experienced similar efficacy and safety outcomes when treated with ≥ 10 units or < 10 units regular insulin for the treatment of hyperkalemia. Though hypoglycemia occurred more often in patients receiving ≥ 10 units, the overall incidence (11%) was low and not statistically significant.

AUDIOVISUAL RECORDING LINK: <https://youtu.be/3oDscS80ti8>

Presenters: Kelli Keats

Link to Presentation: <https://vimeo.com/537449272>

TITLE: Evaluation of Loading Dose Strategies for Phenytoin/Fosphenytoin for Overweight Patients Using Either Actual or Adjusted Body Weight

AUTHORS: Kelli Keats, Rebecca Powell, Jody Rocker, Lindsey Sellers Coppiano

OBJECTIVE: Identify the optimal loading dose strategy for phenytoin in overweight patients

SELF ASSESSMENT QUESTION: How would you calculate a fosphenytoin loading dose for a patient who weighs 130% of their ideal body weight (IBW)?

BACKGROUND: Traditional loading doses of phenytoin or fosphenytoin are usually 15-20 mg/kg. However, the appropriate dosing strategy in overweight patients is unknown. The purpose of this study is to determine the optimal loading dose strategy of phenytoin/fosphenytoin in overweight patients by comparing the percent of patients achieving the goal serum drug level after a 20mg/kg loading dose using actual body weight (ABW) versus adjusted body weight (AdjBW).

METHODOLOGY: Patients were included if they received a loading dose of phenytoin/fosphenytoin of at least 10mg/kg ABW, had a phenytoin level drawn less than 6 hours after the end of the infusion, and weighed at least 120% of their IBW. Patients were excluded if they received intramuscular phenytoin or were already taking phenytoin.

RESULTS: This single-center, retrospective review included 195 patients (128 in AdjBW group and 67 in ABW group). There were no differences in baseline age, sex, body mass index, history of seizures, or kidney or liver dysfunction. Patients in the AdjBW group weighed more (96.2kg vs. 91.2kg, $p=0.04$) and received a lower dose in milligrams (1364 vs. 1760, $p<0.0001$) and in mg/kg of ABW (14.2 vs. 19.3, $p<0.0001$). The primary outcome of a post-load phenytoin level between 10-20mcg/mL was achieved in 74% of patients in the AdjBW group and 57% of patients in the ABW group ($p=0.02$). Additionally, patients in the ABW group were more likely to have a supratherapeutic level (>20 mcg/mL) (43% vs. 22%, $p=0.003$) although adverse reactions (nystagmus, ataxia, bradycardia, and hypotension) did not differ between the groups.

CONCLUSION: Patients weighing $>120\%$ of their IBW should be dosed with 20mg/kg based on AdjBW to achieve a therapeutic phenytoin concentration of 10-20mcg/mL.

Presenters: Elizabeth Anderson

TITLE: Clinical and economic impact of procalcitonin testing at an academic tertiary care medical center

AUTHORS: Elizabeth Anderson, Cyle White, Brittany White, Emily Goodwin

OBJECTIVE: Determine a clinically and economically appropriate role for PCT testing at the study institution.

SELF ASSESSMENT QUESTION: What effect on antimicrobial therapy duration does PCT testing have at the study institution?

BACKGROUND: In 2017, the US Food and Drug Administration approved procalcitonin (PCT) testing to guide antibiotic therapy in patients with acute respiratory infections. Guidelines by the Infectious Diseases Society of America recommend PCT use to guide de-escalation of antibiotic therapy in certain disease states such as community acquired pneumonia. Erlanger Health System permits the use of PCT to aid in clinical decision making and transitioned from send-out to in-house PCT testing in 2018. The aim of this study is to evaluate the clinical and economic benefits of rapid in-house PCT testing compared with delayed send-out testing.

METHODOLOGY: This is a single center, retrospective, observational study. This study included adult patients admitted to Erlanger Health System who received PCT monitoring in response to a suspected or confirmed infection. Pregnant patients were excluded from this study. Two cohorts were compared, with the first consisting of patients who had PCT levels prior to implementation of in-house, or delayed result PCT testing in November 2018 and the second consisting of patients with PCT levels after the implementation of in-house, or rapid result PCT testing after November 2018. Data was collected using chart review. The primary outcome of this study is total duration of antimicrobial therapy between groups. Secondary outcomes include cost of antimicrobial therapy and PCT testing, number of PCT tests ordered, incidence of *Clostridioides difficile*, mention of PCT testing as a reason to discontinue antimicrobial therapy in the electronic medical record, and number of PCT orders on patients with comorbidities known to affect PCT levels irrespective of infection.

RESULTS: In process .

CONCLUSIONS: In process.

LINK <https://www.youtube.com/watch?v=YhzkgJULx2M>

Presenters: Natalie Ramsey

TITLE: The Use of Convalescent Plasma Therapy in the Management of COVID-19: A Retrospective Study

AUTHORS: Natalie Ramsey, Matt McAllister, Deanna Tabb, Saad Aldosari

OBJECTIVE: Determine if ABO compatible COVID-19 convalescent plasma is a viable treatment option for COVID-19
 SELF ASSESSMENT QUESTION: Does the use of ABO compatible COVID-19 convalescent plasma reduce length of hospital stay in patients diagnosed and hospitalized with COVID-19?

BACKGROUND: SARS-COV-2 or COVID-19 has infected millions worldwide and has become a world pandemic since December 2019. As of September 2020, there were still limited treatment and vaccine options, leaving a strain on the health care system and an urgent need for effective therapies. The use of convalescent plasma for treatment of COVID-19 was initiated in early April 2020 through the Expanded Access Program to help with the need of new therapies. Since the use of convalescent plasma for COVID-19 is still new, questions regarding efficacy still remain. The purpose of this study is to assess the safety and efficacy of ABO compatible COVID-19 convalescent plasma compared to supportive care in patients hospitalized and diagnosed with a positive PCR COVID-19 test.

METHODOLOGY: An IRB approved retrospective chart review of patients with a confirmed diagnosis of COVID-19 from a positive PCR COVID-19 test who received ABO compatible convalescent plasma for COVID-19 from March 1, 2020 to August 31, 2020 were compared to similar patients who did not receive convalescent plasma. Patients were excluded if hospital mortality occurred within 3 days of positive PCR COVID-19 result, if they received at least 1 dose of remdesivir, or if they did not receive supplemental oxygen. The primary outcome was change in length of hospital stay. The secondary outcomes include clinical recovery at 28 days, clinical improvement at 28 days, all-cause mortality at 14 and 28 days, change in severity score at 14 and 28 days from baseline, and change in laboratory values of inflammatory markers at 14 and 28 days.

RESULTS: In progress

CONCLUSIONS: In progress

L Evaluating the Use of Direct Oral Anticoagulants in Renal Dysfunction at an Academic Medical Center

Room E

Presenters: Aasna Patel

TITLE: Evaluating the Use of Direct Oral Anticoagulants in Renal Dysfunction at an Academic Medical Center

AUTHORS: Aasna Patel, Leah Ann Durham, Margaret Pate, Amy Weiss

OBJECTIVE: Summarize the findings regarding the use of DOACs in patients with renal dysfunction.

SELF ASSESSMENT QUESTION: Which of the following patient populations experienced the most adverse events on their home dose of apixaban or rivaroxaban?

BACKGROUND: Direct oral anticoagulants (DOACs) offer more predictable pharmacokinetics, fewer drug interactions, and fixed dosing strategies making them attractive options for anticoagulation. Because of limited data for dosing guidance in renal dysfunction, including patients with either end stage renal disease (ESRD) or chronic kidney disease (CKD), there is a concern for adverse events related to suprathreshold or subtherapeutic dosing of DOACs. This project assessed adverse events of patients with renal dysfunction defined as ESRD or CKD who were admitted to UAB Hospital while receiving a DOAC at home.

METHODOLOGY: A retrospective chart review was conducted for patients admitted to UAB Hospital in 2020 on apixaban or rivaroxaban with ESRD or CKD. DOAC indication, adverse event experienced (bleeding or thrombotic event), and renal function were all documented.

RESULTS: Out of the 120 patients evaluated, 20 patients experienced an adverse event related to the use of their DOAC. The majority of patients had ESRD (18/20, 90%), were on apixaban (19/20, 95%), had a bleeding event (14/20, 70%). However, 6/20 (30%) had a thrombotic event. Nineteen patients (95%) were discharged from the hospital after their event. Of the nineteen patients discharged, six patients left without anticoagulation (32%), two were discharged on a different agent (11%), and eleven were continued on the same agent (57%). Three patients who continued the same agent had dose changes (27%).

CONCLUSIONS: A variety of dosing strategies were observed in this patient population. Patients with ESRD seem to be at the highest risk for adverse events. Careful consideration of benefit versus harm and further investigation is needed to determine optimal dosing strategy.

Video Presentation: <https://www.youtube.com/watch?v=XDmwEtmGLRg>

O Evaluation of Immunization Rates After Implementation of a Vaccination Program for Oncology Patients

Room A

Presenters: Taylor Turner

TITLE: Evaluation of Immunization Rates After Implementation of a Vaccination Program for Oncology Patients

AUTHORS: Taylor Turner, Samantha Schmidt, Benjamin Britt

OBJECTIVE: Identify the impact on immunization compliance rates after implementation of a vaccination program for newly diagnosed oncology patients.

SELF ASSESSMENT QUESTION: What impact can pharmacists make on vaccine education and program implementation?

BACKGROUND: Patients with cancer are at increased risk for developing vaccine-preventable infections; this is often due to the malignancy itself, immunosuppressive therapy, or impaired host defenses. Infection can lead to serious complications and administration of recommended immunizations can reduce the morbidity and mortality associated with infection. The purpose of this study is to evaluate the newly implemented oncology vaccination program and its effect on immunization compliance rates.

METHODOLOGY: This pre-and post-intervention chart review was conducted to assess compliance rates for new adult oncology patients. Data for pre-intervention was collected from December 1, 2019 to February 28, 2020 and post-intervention was collected from December 1, 2020 to February 28, 2021. Established oncology patients, those with history of solid organ or bone marrow transplant, comfort care patients, or patients lost to follow up were excluded. The primary endpoint was to evaluate the impact on immunization rates after implementing a vaccination program for oncology patients. The evaluated vaccines included influenza, pneumococcal, varicella zoster, tetanus + pertussis, and human papillomavirus. Secondary endpoints included evaluation of the prevalence of adverse reactions and appropriateness of vaccination timing prior to chemotherapy initiation.

RESULTS: The pre-intervention group featured 309 patients with 159 in the inclusion group and an overall compliance rate of 5.7%. The post-intervention group featured 308 patients with 172 in the inclusion group and an overall compliance rate of 61.0%.

CONCLUSIONS: Implementation of a vaccination program significantly increased compliance rates in newly diagnosed oncology patients. These findings add important data to the limited body of studies on vaccine adherence in oncology patients.

Video link: <https://lexmed.wistia.com/medias/kdb3xtcsao>

1 Effect of Time-to-Therapeutic Tacrolimus Range on Early Rejection and Renal Dysfunction after Heart Transplant

Room F

Presenters: Alexis Nanni

TITLE: Effect of Time-to-Therapeutic Tacrolimus Range on Renal Dysfunction and Early Rejection after Heart Transplant

AUTHORS: Alexis Nanni, James Henderson, Mara Watson, Matt Harris, Lexie Zidanyue Yang, Adam DeVore

OBJECTIVE: Describe the association between tacrolimus time-to-therapeutic range, early renal dysfunction, and acute cellular rejection after heart transplant.

SELF ASSESSMENT QUESTION: True or **false**: this study found an increased risk of ACR with a longer TTT.

BACKGROUND: Tacrolimus remains the cornerstone of immunosuppressive therapy following heart transplantation (HT). Currently, clinicians may delay initiation to help mitigate nephrotoxicity. This study aimed to determine if there is an association between tacrolimus time-to-therapeutic range (TTT), early renal dysfunction, and acute cellular rejection (ACR) after HT.

METHODOLOGY: This was a retrospective, single center study. Patients included are adult patients who underwent HT at Duke University Hospital between July 2013 and April 2020. The primary endpoint was TTT among patients with and without new onset renal dysfunction. Other variables of interest included the occurrence of ACR, supratherapeutic tacrolimus levels, time from transplant to therapeutic tacrolimus range, and tacrolimus time-in-therapeutic range. Logistic regression analysis was utilized to model the association of TTT with new onset renal dysfunction after tacrolimus initiation, controlling for other known risk factors for renal dysfunction.

RESULTS: A total of 271 patients were included in the final analysis and 95% received basiliximab induction. In the unadjusted analysis, patients who developed new onset renal dysfunction after tacrolimus initiation post-HT had a significantly shorter TTT (11.9 vs 13.6 days, $p=0.049$). Patients were also more likely to have supratherapeutic tacrolimus trough concentrations compared to those who did not (64.2% vs 46.7%, $p=0.013$). When adjusted for other known risk factors there was a trend towards decreased rates of new onset renal dysfunction with longer TTT, but this did not reach statistical significance (OR 0.96; 95% CI [0.91, 1.01], $p=0.09$). There was no association in TTT between patients with and without ACR (13.8 vs 12.9 days, $p=0.263$).

CONCLUSIONS: In the unadjusted analysis, TTT and the incidence of supratherapeutic tacrolimus levels during the first 30 days post-HT were both associated with new onset renal dysfunction. After adjusting for known risk factors of renal dysfunction, TTT was not associated with new onset renal dysfunction. There was no association between TTT and ACR in the setting of high use basiliximab induction.

B IMPLEMENTING THE GOLD 2020 COPD GUIDELINE TREATMENT RECOMMENDATIONS IN VETERAN PATIENTS AT A PRIMARY CARE CLINIC

Room J

Presenters: Taylor Wood

TITLE: IMPLEMENTING THE GOLD 2020 COPD GUIDELINE TREATMENT RECOMMENDATIONS IN VETERAN PATIENTS AT A PRIMARY CARE CLINIC

AUTHORS: Taylor Wood, Thomas Worrall, Rebecca Malcolm

OBJECTIVE: Describe the symptomatic response of patients with COPD following medication therapy changes to align with the GOLD guideline recommendations.

SELF ASSESSMENT QUESTION: What is one potential benefit of ICS de-escalation in COPD medication therapy management?

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality in America. In 2017, the Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (GOLD) guidelines altered the pharmacotherapy recommendations to reflect the newest primary literature, questioning the utility of inhaled corticosteroids (ICS) in COPD. With the latest update, inhaled corticosteroids and long-acting beta-agonist (ICS/LABA) inhalers were no longer preferred for most, with long-acting muscarinic antagonists and long-acting beta-agonists (LAMA/LABA) inhalers playing a larger role. Although the GOLD guideline recommendations have been updated for years, many patients with COPD are not treated with the newest evidence-based COPD medications. Thus, the purpose of this project is to implement the treatment recommendations of the GOLD 2020 guidelines in Veterans with COPD.

METHODOLOGY: Quality improvement project conducted at a primary care clinic targeting ICS withdrawal via telehealth services. Veteran patients included were diagnosed with moderate to severe COPD per Gold 2020 Guidelines – Groups B and C treated with either an ICS/LABA or ICS alone. Patients with asthma, pregnancy, lung cancer, tuberculosis, or who required supplemental oxygen were excluded.

RESULTS: Of 148 veterans identified for ICS de-escalation, 31 patients were contacted for a pharmacotherapy encounter, with 20 of 31 patients able to be reached at the five-week follow-up appointment. The average CAT score at baseline was 15.1, which decreased to 12.8 at follow-up. No patients had emergency visits or hospitalizations for COPD during the study period.

CONCLUSIONS: Pharmacists can assist in implementing evidence-based COPD pharmacotherapy that improves clinical outcomes while also educating on the proper use of inhaler devices.

Presenters: Mackenzi Meier

TITLE: The Impact of Pharmacist Integration in the Primary Care Setting on Transitions of Care Outcomes

AUTHORS: Mackenzi Meier, Grace Simpson, Savannah Eason, Chelsea Keedy

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify the financial impact of having a pharmacist involved in the transitions of care process.

SELF ASSESSMENT QUESTION: Approximately how much revenue is missed when a patient is contacted by non-pharmacy staff post-discharge?

BACKGROUND: To determine the financial impact of ambulatory care pharmacists on transitional care management.

METHODOLOGY: A computer-generated list identified adult patients discharged from St. Joseph's/Candler (SJ/C) with a listed primary care provider within the SJ/C Primary Care Medical Group at Eisenhower. Patients discharged from the hospital that received a post-discharge phone call from a pharmacist were compared to those that received a call by another staff member. Data was collected regarding the financial and non-financial impact of pharmacist involvement.

RESULTS: There were 104 patients discharged from the hospital between November 2019-March 2020 meeting above mentioned criteria. Twenty-four patients were contacted by a pharmacist with 20 hospital follow up appointments scheduled. Total amount billed for those appointments was \$4,220 (average of \$211 per visit). Twenty-five calls were made by non-pharmacist staff with 23 appointments scheduled. Total amount billed for those appointments was \$2,445 (average of \$106 per visit). Of the patients contacted by someone other than the pharmacist, only 5 calls were by other clinical staff. Pharmacists made 33 clinical interventions including medication reconciliation, medication procurement, referrals, lab orders, and education. One intervention was made by non-pharmacist staff. The 30-day readmission rate for pharmacist contacted patients was 8% versus 12% for non-pharmacist contacted patients.

CONCLUSIONS: Pharmacist involvement in transitional care management services in the outpatient setting while integrated into a primary office of a health system is not well described. This data highlights an opportunity for pharmacists to contribute to increased revenue, reduced readmissions, and optimize clinical interventions upon hospital discharge.

<https://youtu.be/qLm7ci4J82Y>

Presenters: Gabrielle DuBruille

TITLE: Optimizing utilization of SGLT2 inhibitors in an outpatient heart failure population

AUTHORS: G DuBruille, B Sloan, L Straw, C Mardis, M Scalese, R Barfield, P McCann, S Napier, A Mardis

OBJECTIVE: Identify appropriate criteria for initiating an SGLT2 inhibitor in a patient with heart failure with reduced ejection fraction (HFrEF)

BACKGROUND: SGLT2 inhibitors (SGLT2i) decrease morbidity and mortality in patients with HFrEF. Specifically, empagliflozin and dapagliflozin have recently been recommended for HFrEF. The purpose of this study was to assess the impact of a provider education program and SGLT2i initiation protocol on SGLT2i prescribing and to determine barriers to SGLT2i utilization.

METHODOLOGY: This was a single center, retrospective, cross-sectional cohort study of an outpatient heart failure population. The primary outcome was the proportion of patients on SGLT2i therapy seen in clinic prior to (May/June 2019) and after (May/June 2020) pharmacist-led protocol development and provider education. Candidates for SGLT2i were those with NYHA Class II-IV symptoms, SBP \geq 120 mmHg (MAP \geq 80 mmHg for left ventricular assist device), and eGFR \geq 20 mL/min. Chi-square and t-tests were used to compare categorical and continuous data, respectively.

RESULTS: A total of 760 outpatient encounters were evaluated; most patient characteristics were similar between the pre- and post-protocol cohorts. In the pre-protocol cohort, 1% of patients received SGLT2i therapy, compared to 16% of patients in the post-protocol cohort ($p < 0.0001$). Patients with a recent heart failure hospitalization, eGFR < 45 mL/min, or > 60 years old were less likely to be initiated on therapy. In addition to improved rates of SGLT2i utilization, prescribing rates of other guideline-directed medical therapies (GDMT) also improved.

CONCLUSIONS: Pharmacist-led provider education and initiation protocols increased SGLT2i utilization in an outpatient heart failure population, as well as additional GDMT. Pharmacists play a vital role in improving SGLT2i utilization.

SELF ASSESSMENT QUESTION: Which of the following criteria is required to initiate empagliflozin in a patient diagnosed with HFrEF? (Select all that apply) A. eGFR ≥ 20 mL/min/1.73m² B. eGFR ≥ 30 mL/min/1.73m² C. NYHA Class II-IV D. Diagnosed with type 2 diabetes

Email: Gabrielle.Dubruille@prismahealth.org

Presentation link: <https://youtu.be/TApn5tmhTbA>

Presenters: Shannon Lawson

TITLE: Antimicrobial prophylaxis after penetrating brain injury

AUTHORS: Shannon Lawson, Alexandria Hall, Emily Durr, Christopher Morrison

OBJECTIVE: Describe the correlation between prophylactic antibiotic use and early CNS infection in patients with penetrating brain injury.

SELF ASSESSMENT QUESTION: (True/False) Antimicrobial prophylaxis for at least 5 days following penetrating brain injury is required to prevent CNS infection.

BACKGROUND: Characterize prophylactic antimicrobial use and associated outcomes in patients with a penetrating traumatic brain injury (pTBI) at a high volume ACS-verified level 1 trauma center

METHODOLOGY: A single-center retrospective evaluation was conducted, including all patients with a diagnosis of penetrating brain injury at Grady Memorial Hospital between 2016 and 2019. Patients less than 18 years of age or those discharged or deceased within 72 hours were excluded. The primary objective was to assess the rate of central nervous system (CNS) infection in patients with a pTBI. Secondary objectives included secondary infection rates, length of stay, and rate of adherence to the institutional guideline.

RESULTS: Thirty-six patients met inclusion criteria for the study. The mechanism of injury was categorized as a civilian gunshot wound for all 36 patients. Twenty-eight (77.8%) patients received 5 days or less of antimicrobial prophylaxis, and 8 (22.2%) patients received greater than 5 days. Three patients (8.3%) developed a CNS infection within 14 days, all 3 patients were in the group receiving 5 days or less of antimicrobial prophylaxis. Sixteen (44.4%) patients experienced a secondary infection (including pulmonary infection, surgical site infection, skin and soft tissue infection, bacteremia, and/or urinary tract infection). Zero patients received antibiotic coverage (both agent selection and duration) per institutional guideline. The most commonly utilized prophylactic antibiotic agents include: cefazolin (70.9%), vancomycin (41.9%), ceftriaxone (19.3%), and ampicillin/sulbactam (16.1%). Seven (22.6%) patients received only a single dose of prophylactic antibiotics, and 21 (66.7%) received 3 days or less of therapy.

CONCLUSIONS: Findings of this study suggest that there is variability in practice with regard to initiation of prophylactic antibiotics. Despite the low rate of adherence to the institutional guideline, the rate of CNS infection was comparable what has been observed in practice outside of this institution. Conservative use of antimicrobial prophylaxis can be considered in this patient population.

Presenters: Holly Lanham

TITLE: Evaluating the Safety of Rocuronium as an Alternative to Cisatracurium for Acute Respiratory Distress Syndrome

AUTHORS: H. Lanham, E. Konopka, A. Mathews, C. Rackley, B. Kram

OBJECTIVE: To describe differences in safety between continuous infusion cisatracurium and rocuronium in patients with ARDS.

SELF ASSESSMENT QUESTION: Cisatracurium is the most commonly studied NMB for moderate to severe ARDS in the past 5 years.

True

False

BACKGROUND: Neuromuscular blockers (NMBs) help facilitate prone positioning and are utilized in cases of refractory hypoxemia due to acute respiratory distress syndrome (ARDS), although the mortality benefit is still unclear. Limited safety and efficacy data exist for rocuronium in critically ill patients.

METHODOLOGY: This single-center, retrospective cohort study included patients with a continuous infusion NMB ordered for an indication of ARDS between September 2019 and December 2020. Included patients were 18 years of age or older admitted to the medical or surgical intensive care unit. Patients were stratified according to study medication and the presence or absence of SARS-CoV-2 during the hospital admission.

RESULTS: A total of 115 patients were included. Patients remained on continuous infusion NMB for a median duration of 2 days with the vast majority receiving concomitant infusions of opioids and propofol. The median (Q1, Q3) time spent in goal train of four (TOF) range was 50% (22.2%, 80%) for cisatracurium and 42.9% (7.1%, 66.7%) for rocuronium. In hospital mortality was observed in 53.5% in the cisatracurium group and 37.9% in the rocuronium group.

CONCLUSIONS: Cisatracurium and rocuronium appear to achieve a similar proportion of TOF within goal range. Continuous infusion rocuronium might be a reasonable alternative to cisatracurium for patients with moderate-severe ARDS requiring continuous NMB.

https://duke.zoom.us/rec/share/xzlpzI893QjicOnTdc_vYIr4BHRItN2OfJu62ceyQ3irNEoATecEw0GU10JPo8.5pHcmXnrjanSh-N?startTime=1618947975000

G Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System (VAHCS) Community Living Center (CLC)

Room F

Presenters: Heather Sherrill

TITLE: Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System (VAHCS) Community Living Center (CLC)

AUTHORS: Heather Sherrill, Brittany Melville, Camille Robinette

OBJECTIVE: Identify the change in DBI at CLC admission.

SELF ASSESSMENT QUESTION: How did the DBI change at SVAHCS CLC admission?

BACKGROUND: Medications with anticholinergic or sedative properties are commonly prescribed in older adults. The Drug Burden Index (DBI) quantitatively measures an individual's cumulative exposure to these medications. An increased DBI score has been associated with increased adverse events. The purpose of this project is to evaluate Veterans' DBI upon admission to the Salisbury VAHCS CLC.

METHODOLOGY: This is a retrospective quality improvement project. Eligible subjects included Veterans admitted to the SVAHCS CLC from January 1, 2019 to December 31, 2019 age 65 years and older and prescribed an anticholinergic or sedative medication(s) upon admission. The primary objective is to identify the change in DBI at CLC admission. Secondary objectives include describing DBI change from admission to three months following admission or at CLC discharge, comparing the change in DBI for those admitted for long-term versus short stay care, and assessing the number of falls per Veteran.

RESULTS: Seventy-three Veterans were included. There was no change in DBI score at admission for 69 (94.5%) Veterans. DBI score decreased at admission for 3 (4.1%) Veterans and increased for 1 (1.4%) Veteran. There was no change in DBI score for 61 (83.6%) Veterans from admission to three months or CLC discharge. There was no change in DBI score for the majority of Veterans admitted for both long-term versus short stay care (50% vs. 85.5% respectively). Veterans with a high DBI score had the highest fall rate during the study period of 22.6%.

CONCLUSIONS: The majority of Veterans admitted for both long-term and short stay care experienced no change in DBI score at CLC admission or at three months or discharge. Veterans with a high DBI score had more falls than those with low or medium scores.

LINK TO RECORDING: (3) Evaluation of Change in Drug Burden Index Following Admission to a VA Health Care System Community L - YouTube

Presenters: Ashley Rizzo

TITLE: Impact of Internal Medicine Pharmacists on Antimicrobial Stewardship (IMPAS)

AUTHORS: Ashley Rizzo, Sujit Suchindran, Benjamin Albrecht, Nicole Metzger

OBJECTIVE: Describe and characterize antimicrobial stewardship interventions made by internal medicine pharmacists to identify areas of stewardship that can be expanded to patients not covered by antimicrobial stewardship teams.

SELF ASSESSMENT QUESTION: Which barrier to implementation of antimicrobial stewardship interventions was encountered most frequently by internal medicine pharmacists?

BACKGROUND: Despite their known benefits, antimicrobial stewardship teams (ASTs) alone may not be able to evaluate all inpatients receiving antimicrobials. Internal medicine (IM) pharmacists within multidisciplinary teams in acute care hospitals reduce medication errors, improve transitions of care, and educate healthcare providers. However, little is known about the impact of IM pharmacists on antimicrobial stewardship. The purpose of this study is to describe and characterize antimicrobial stewardship interventions made by IM pharmacists to identify areas of stewardship that can be expanded to patients not covered by ASTs.

METHODOLOGY: This study is a prospective, observational, multicenter, descriptive study conducted at Emory University Hospital (EUH) and EUH Midtown. IM pharmacists and their trainees were recruited to document routinely made antimicrobial stewardship interventions from daily patient care activities. Documentation of interventions was completed using TheraDoc software or equivalent Microsoft Excel spreadsheet. Interventions were classified based on infection source, intervention type, whether recommendations were accepted or rejected by providers, as well as any barriers encountered to implementation. Pharmacists were included and recruited to participate if they were assigned to an adult IM service. The primary objective was to identify, describe, and characterize the most common antimicrobial stewardship interventions made by IM pharmacists. Secondary objectives include classification of interventions by type, acceptance of interventions by providers, and others. Data will be analyzed using descriptive statistics.

RESULTS: 208 interventions were made by 6 participants over 6 weeks and were accepted 95.2% of the time. Intervention on vancomycin was most common (30.3%), respiratory infections were most common (21.6%), and most common interventions were dose adjustment based on patient factors (26.9%) and shortened duration (20.7%). The most common barrier was physician concerns (46.7%).

CONCLUSIONS: IM pharmacists made several stewardship interventions during routine patient care that are typically accepted by providers. AST efforts and future outcomes research should be focused on vancomycin utilization, respiratory infections, adverse drug events, or effect of shortened antimicrobial therapy duration.

Link to Presentation: <https://youtu.be/9I-1TUQ8NE>

Presenters: Stephanie Karvosky

TITLE: Piperacillin-tazobactam versus cefepime for empiric gram-negative antimicrobial coverage in patients with sepsis

AUTHORS: Stephanie Karvosky, John Boreyko, Mark Vestal, Julie Thompson, Andrew Darkow

OBJECTIVE: Identify if patients with sepsis should be treated with piperacillin-tazobactam or cefepime for empiric gram-negative antimicrobial coverage, or if the regimens may be used interchangeably based on patient-specific risk factors.

SELF ASSESSMENT QUESTION: Should patients with sepsis be treated with piperacillin-tazobactam or cefepime for empiric gram-negative antimicrobial therapy?

BACKGROUND: Broad-spectrum, empiric antibiotics should be utilized in the initial management of sepsis. The empiric regimens of vancomycin plus piperacillin-tazobactam or cefepime are commonly utilized, but there is sparse literature comparing their gram-negative efficacy in sepsis.

METHODOLOGY: This study was a retrospective, observational, single-center cohort study evaluating patients with sepsis who received either vancomycin plus piperacillin-tazobactam or cefepime for empiric antimicrobial therapy. Participants were included if they were at least 18 years of age, had a diagnosis of sepsis, a provider-documented infection, and were treated with vancomycin plus either piperacillin-tazobactam or cefepime for a minimum of 48 hours. The primary endpoint was same-cause mortality at 30 days. Secondary endpoints included duration of hospital stay, time to first dose of antibiotics, incidence of acute kidney injury, incidence of central nervous system toxicity, and incidence of *Clostridioides difficile* infection.

RESULTS: There were no significant differences between treatment regimen groups regarding any demographic characteristics. The primary endpoint was not statistically significant between treatment regimens [X² (2, N = 146) = 1.42, P = 0.491]. Furthermore, there were no differences between treatment regimens in secondary endpoints, except for primary admission serum creatinine [piperacillin-tazobactam and cefepime, 1.1 vs. 1.6, P = 0.017].

CONCLUSIONS: There were no differences between piperacillin-tazobactam and cefepime for empiric antimicrobial gram-negative coverage in sepsis. Empiric regimens should be initiated based off patient-specific risk factors.

Presenters: Savan Patel

TITLE: Evaluation of Outcomes and Utilization of Adjunctive Therapy in COVID-19 Infections

AUTHORS: Savan Patel, Britney Bowers, Bethany Brock, Joe Rambo

OBJECTIVE: Identify the role of vitamin supplementation in COVID-19 infection.

SELF ASSESSMENT QUESTION: What is the NIH recommended dose of dexamethasone in hospitalized patient indicated for the use of dexamethasone for the treatment of COVID-19 infection?

BACKGROUND: SARS-CoV-2, a highly contagious virus was identified in late 2019 to cause corona virus disease 2019 (COVID-19). The approach to management of patients with SARS-CoV-2 is based on limited data and evolves rapidly as new clinical data emerges. Currently, the limited evidence of supportive therapy for COVID-19 patients has resulted in providers using therapy utilized in other respiratory illnesses. NIH recommends for the use of corticosteroids in severe COVID-19 patients requiring supplemental oxygen. NIH has no recommendation for or against the use of supplement vitamin C, vitamin D and zinc. This chart review will identify the role of adjunctive therapy (corticosteroids, vitamin C, vitamin D and zinc) in the treatment of COVID-19 in hospitalized patients.

METHODOLOGY: Single center, institutional IRB approved, retrospective chart review of hospitalized patients with confirmed COVID-19 infection was conducted. Patients with 18 years of age or older, confirmed COVID-19 infection and hospitalization LOS \geq were included in the chart review. Patients that received systemic corticosteroids were compared to patients that did not receive systemic corticosteroids. And, patients that received vitamin C, vitamin D and zinc were compared to patients that did not receive vitamin C, vitamin D and zinc. Length of hospitalization days, length of ICU days, supplemental oxygen requirements, length of ventilation use and mortality was analyzed to identify the effect of vitamins and systemic steroids on clinical outcomes in patients with COVID-19 infection.

RESULTS: The Vitamin Treatment Group (n=123) had shorter ICU LOS by 3.5 days (11.6 vs 15.1 days), similar length on supplemental oxygen (9.6 vs 10.1 days), shorter ventilation days by 1.4 days (10.9 vs 12.3 days) and reduced mortality (6.5% vs 14.3%), but had longer LOS by 1.4 days (11.2 vs 9.8 days) compared to the Vitamin Control Group (n=77). The Steroid Treatment Group (n=83) had longer ICU LOS by 4 days (12.3 vs 8.3 days), longer supplemental oxygen use by 2.3 days (10.7 vs 8.4 days) and longer ventilation days by 4.7 days (13.4 vs 8.7 days), but had reduced mortality (12% vs 14.8%) compared to the Steroid Control Group (n=61).

CONCLUSIONS: Addition of vitamin D, vitamin C and zinc should be considered for hospitalized patients. Vitamins provided mortality benefit in hospitalized patients and corticosteroids provided mortality benefit in patients requiring supplemental oxygen in hospitalized patients, but it is unknown if the outcomes observed in this chart review are statistically significant.

PRESENTATION LINK: <https://youtu.be/ljkhRmRR-3Y>

Presenters: Montana Fleenor

TITLE: Evaluation of a Prior to Admission (PTA) Medication Reconciliation Risk Scoring Tool

AUTHORS: Montana Fleenor;Lauren McCluggage;Ryan Schell;Halden VanCleave;Scott Nelson

OBJECTIVE: Describe the utility of an admission medication reconciliation risk scoring tool for identifying patients at high risk for medication discrepancies.

SELF ASSESSMENT QUESTION: True or False: The admission medication reconciliation risk scoring tool identified patients at high risk for medication discrepancies.

BACKGROUND: Medication reconciliation is vital in preventing medication errors during transitions of care. Implementation of effective medication reconciliation, however, remains a challenge for healthcare systems due to cost and resource constraints. The objective of this study was to evaluate a risk scoring tool for identifying patients at high risk for medication discrepancies and therefore prioritized for pharmacy intervention with admission medication reconciliation.

METHODOLOGY: Single-center, retrospective study at an academic medical center including patients \geq 18 years of age with a medication history note written by a pharmacy staff member. The primary outcome was number of changes made to the prior to admission (PTA) medication list by pharmacy staff. Secondary outcomes included changes in risk score after medication reconciliation was completed, the number of changes based on individual criteria for risk score, and the number of clinically-relevant changes from a randomized subgroup of patients.

RESULTS: Preliminary results: The study included 10,713 patient encounters.

CONCLUSIONS: In progress

B Comparison of Glycemic Characteristics and Outcomes of People with Diabetes in the Presence or Absence of COVID-19 Infection: A Retrospective Cohort Study

Presenters: Sarah Piraino

TITLE: Comparison of Glycemic Characteristics and Outcomes of People with Diabetes in the Presence or Absence of COVID-19 Infection: A Retrospective Cohort Study

AUTHORS: Sarah Piraino, Jennifer Clements, Karen Bryson

OBJECTIVE: At the conclusion of the presentation, the participant should be able to: Describe differences in glycemic control and diabetes medications between people with diabetes in the presence or absence of COVID-19 infection following a hospitalization.

SELF ASSESSMENT QUESTION: True or false: Following a hospitalization, people with diabetes and COVID-19 infection had a significantly higher A1C level post-discharge than those with diabetes without COVID-19 infection.

BACKGROUND: Diabetes is a significant comorbidity in mortality and poor clinical outcomes during COVID-19 infection. Literature exists on inpatient management of diabetes and COVID-19 infection. However, glycemic characteristics after hospital admission have not been investigated. The purpose of this study was to explore glycemic outcomes between people with diabetes in the presence or absence of COVID-19 infection.

METHODOLOGY: In a retrospective chart review between March 1, 2020 and July 31, 2020, criteria for Group 1 included people with diabetes and COVID-19 infection, whereas Group 2 included people with diabetes without COVID-19 infection. The primary endpoint was a comparison of A1C levels prior to hospital admission and post-discharge between Group 1 and Group 2. Secondary outcomes were changes in number of medications for diabetes, including insulin doses.

RESULTS: Thirty-eight patients met inclusion criteria for Group 1 and thirty-eight patients were matched for Group 2. Baseline characteristics were similar except for higher anion gap ($p=0.02$) in Group 1 and active smoking status ($p=0.02$) in Group 2. There was no difference in the primary outcome ($p=0.07$) between the groups. No differences were found in the number of post-discharge medications ($p=0.30$), insulin doses ($p=0.12$), or number of injections ($p=1.00$) between the groups.

CONCLUSIONS: There were no significant findings when evaluating post-discharge A1C between people with diabetes in the presence or absence of COVID-19 infection. This study had a small sample size and further research may be needed to determine long-term effects of COVID-19 on glycemic control.

Presentation Link: <https://youtu.be/aCnrwBfmQlw>

Presenters: Emily Blaine

TITLE: Evaluation of a High-Risk Patient Program in a Pharmacist-Led Ambulatory Care Clinic

AUTHORS: Emily Blaine, Fallon Hartsell, Courtney E. Gamston, Kimberly Braxton Lloyd

OBJECTIVE: At the conclusion of my presentation, the participant will be able describe common clinical interventions associated with a “high-risk” program.

SELF ASSESSMENT QUESTION: Name three common clinical interventions associated with a “high-risk” program.

BACKGROUND: Uncontrolled disease states place patients at high risk for long term complications and are associated with increased healthcare costs. Pharmacist-led chronic disease state management has been shown to improve patient outcomes and decrease these burdens. The purpose of this study is to evaluate the impact of a comprehensive medication management (CMM) service that targets patients with chronic conditions that are commonly uncontrolled and/or associated with increased healthcare spending.

METHODOLOGY: This project is a single-center, retrospective service evaluation focused on the clinical impact of a service that targets “high-Risk” patients with chronic conditions. Patients were invited to participate in this service if they had the Auburn University insurance and were recently hospitalized, identified as having an uncontrolled disease state through an employer-sponsored biometric screening program, or identified as having polypharmacy by the university’s employee pharmacy. Participants received monetary incentives to participate. A clinical pharmacist of the Auburn University Pharmaceutical Care performed CMM to identify and address patient-specific disease state management needs. Other members of the patient’s healthcare team were contacted with clinical recommendations, as indicated to optimize patient outcomes. Outcomes include changes in clinical markers and number and types of interventions recommended and accepted.

RESULTS: 143 patients were seen for a total of 518 appointments. During those visits, 1130 interventions (ADD AVG +/- SD) were recommended with a 28.4% acceptance rate. Both A1C and total cholesterol significantly decreased from baseline.

CONCLUSIONS: This pharmacist-led ambulatory care service identified numerous opportunities for intervention in patients at high-risk for poor health outcomes. Other outcomes included maintaining and improving clinical markers and optimizing non-pharmacologic and pharmacologic therapy.

YouTube link: <https://youtu.be/EkcLib-DE-g>

Google Docs: <https://docs.google.com/presentation/d/1cN8AhKobU8kc4dnNqR-uKsO2qZ-Zv9cx3LWdfO1SnJk/edit?usp=sharing>

Presenters: Anju Balani

TITLE: IMPACT OF FIXED VERSUS WEIGHT BASED INITIAL FLUID RESUSITATION FOR SEPSIS IN PATIENTS WITH CONGESTIVE HEART FAILIURE

AUTHORS: Anju Balani, Brooke Lucas, Luke Jones, Gregory Givens, Ashley Costello

OBJECTIVE: Identify trends in sepsis management that could have an indirect impact on patients’ cardiovascular outcomes

SELF ASSESSMENT QUESTION: According to CMS Core Measures, what volume of fluid resuscitation is recommended for all patients with severe sepsis or septic shock?

BACKGROUND: Determine if a weight based versus fixed dose of fluid resuscitation for sepsis have an impact on cardiovascular related 30-day readmission incidence.

METHODOLOGY: Retrospective chart review was conducted to identify patients between July 1,2019 and June 31,2020. Eligible participants had a history of heart failure, presented with a diagnosis of sepsis and received NS. The primary endpoint is 30-day readmission incidence for cardiovascular- related causes. Secondary endpoints include hospital length of stay, in-hospital mortality, 30-day mortality, need for intubation, and time to negative fluid balance.

RESULTS:54 patients were included, 33 in the fixed dose group and 21 in the weight based group. 4 patients in the fixed group, and 1 in the weight group experienced the primary outcome (p=1.00). 4 patients in the fixed group and 8 in the weight group had an in hospital mortality (p <0.05). There were no differences identified in any other secondary outcome.

CONCLUSIONS: Fixed dose initial fluid resuscitation in patients with underlying heart failure, did not lower re-admission rates when compared to guideline recommended weight-based approach.

Presenters: Katelyn Jimison

TITLE: Evaluation of antibiotic use following cardiac arrest

AUTHORS: Katelyn Jimison, Tyler Chanas

OBJECTIVE: Describe incidence of positive cultures and common pathogens following cardiac arrest.

SELF ASSESSMENT QUESTION: Which empiric antibiotic regimens may be most appropriate following cardiac arrest?

BACKGROUND: Infections may be common following cardiac arrest, but data are limited to guide antibiotic therapy. Current guidelines from the American Heart Association for post-cardiac arrest care do not make clear recommendations regarding the use of antibiotics in this patient population. The purpose of this study is to characterize the use of empiric antibiotics after cardiac arrest.

METHODOLOGY: This retrospective analysis included adult patients with documented ROSC after in-hospital or out-of-hospital cardiac arrest admitted to an intensive care unit between January 2018 and December 2019. Patients with known infection receiving antibiotics prior to cardiac arrest were excluded. The primary endpoint was incidence of positive cultures following cardiac arrest. Secondary outcomes included empiric antibiotics administered within 7 days of cardiac arrest, organisms identified on culture, and survival to hospital discharge. A total of 758 patients were screened and 625 patients were included for analysis.

RESULTS: 193 (31%) of patients had one or more positive cultures within 7 days following cardiac arrest. Incidence of positive cultures was not significantly different between patients with in-hospital versus out-of-hospital arrest. The most common organisms identified on culture were Gram-negative organisms other than SPACE/SPICE organisms. MRSA and *Pseudomonas* were isolated in cultures from only 2% and 5% of patients, respectively. 357 (57%) of patients received one or more antibiotics within 7 days following arrest. The most commonly administered antibiotics were vancomycin and piperacillin-tazobactam.

CONCLUSIONS: Incidence of positive cultures is fairly low following cardiac arrest, and location of arrest does not appear to significantly impact likelihood of positive culture. Many patients receive broad spectrum antibiotics including MRSA and *Pseudomonas* coverage. The low incidence of these organisms on culture presents an opportunity for selection of more narrow antimicrobial regimens in patients with concern for infection following cardiac arrest.

LINK TO PRESENTATION: <https://youtu.be/p5BN7jvviAI>

Presenters: Layne Reihart

TITLE: Evaluation of vancomycin pharmacokinetic alterations in patients with hemorrhagic stroke on concomitant hypertonic saline therapy

AUTHORS: Layne Reihart, Alyson Wilder, Erin Creech

OBJECTIVE: Describe the effects of concomitant hypertonic saline therapy on vancomycin pharmacokinetic parameters in patients with hemorrhagic stroke.

SELF ASSESSMENT QUESTION: True/False: The investigators hypothesized that, in patients with hemorrhagic stroke, concomitant use of hypertonic saline is associated with reduced clearance of vancomycin.

BACKGROUND: Augmented clearance of vancomycin has previously been described in patients with hemorrhagic stroke. Due to renal regulation of sodium reabsorption and excretion, this augmented clearance may be more pronounced in patients also receiving hypertonic saline. The purpose of this study was to evaluate vancomycin pharmacokinetic parameters in Neuroscience Intensive Care Unit (NSICU) patients with hemorrhagic stroke on concomitant hypertonic saline therapy.

METHODOLOGY: This was a single-center, retrospective cohort study of adult patients admitted to the NSICU with hemorrhagic stroke who received vancomycin between January 1, 2018 and January 1, 2020. Patients with acute kidney injury or renal replacement therapy were excluded. Patients who received hypertonic saline were compared to patients who did not receive hypertonic saline. The primary outcome was the difference between the estimated and actual vancomycin elimination rate constant (k_e) and half-life. Secondary outcomes included weight-based daily vancomycin requirements, vancomycin AUC:MIC achieved, and estimated creatinine clearance based on vancomycin clearance.

RESULTS: There were 75 patients in the control group and 3 patients in the hypertonic saline group. Patients in the hypertonic saline group were younger, had a higher creatinine clearance, and had a higher daily urine output. The actual vancomycin k_e was significantly higher in the hypertonic saline group (0.12 vs 0.09, $p=0.045$), and there was a trend toward a shorter half-life in this group (5.6 vs 7.7 hours, $p=0.054$).

CONCLUSIONS: In patients on vancomycin and concomitant hypertonic saline therapy, there was a trend towards augmented vancomycin clearance demonstrated by a larger actual k_e , a larger difference between the predicted and actual k_e , and a shorter actual half-life.

Email: layne.reihart@prismahealth.org

Presentation Link: https://youtu.be/clPxM0TF9_g

G Implementation of VIONE, a Medication Management Deprescribing Tool, in Home-Based Primary Care and Community Living Centers at a Veteran Affairs Medical Center Room F

Presenters: Natalie Kirkley

TITLE: Implementation of VIONE, a Medication Management Deprescribing Tool, in Home-Based Primary Care and Community Living Centers at a Veteran Affairs Medical Center

AUTHORS: Natalie Kirkley, Chad Potts, Deborah Hobbs

OBJECTIVE: Describe the purpose of implementing a medication management tool aimed at reducing polypharmacy in geriatric patients.

SELF ASSESSMENT QUESTION: What are some barriers associated with medication deprescribing?

BACKGROUND: Polypharmacy, defined as the regular use of at least five medications, plagues the United States healthcare system and affects 42% of the geriatric population. Through medication management and proper deprescribing, the negative consequences associated with polypharmacy can be mitigated. Thus, VIONE, a medication management tool aimed at reducing polypharmacy, was created. VIONE methodology includes reviewing patient profiles and classifying medications into one of five categories: Vital, Important, Optional, Not indicated, or Every medication has an indication. The purpose of this project is to deprescribe unnecessary and potentially harmful medications at the CVVAMC through implementation of VIONE into the Home-Based Primary Care (HBPC) and Community Living Centers (CLCs).

METHODOLOGY: This quality improvement project was approved by the local P&T committee. To be included, Veterans had to be at least 65-years old, enrolled in HBPC or a CLC, and have 15 or more active prescriptions. Hospice patients were excluded. Chart reviews were performed using the VIONE template located in the computerized patient record system (CPRS). Medications found to be "vital" or "important" were maintained. Those found to be "optional" or "not indicated" were recommended for further review by the provider or recommended to be discontinued. All recommendations were documented in CPRS. Shared clinical decisions were made by pharmacist, provider, and patient in regards to any medication adjustments or discontinuations. Data collection is ongoing and includes the total number of Veterans impacted by VIONE, total number of medications deprescribed, classification of deprescribed medications based on pharmaceutical class, and total cost avoidance.

RESULTS: As presented

CONCLUSIONS: As presented

I Adherence to institutional diagnostic stewardship tool for Clostridioides difficile testing Room I

Presenters: Joseph Torrisi

TITLE: Adherence to institutional diagnostic stewardship tool for Clostridioides difficile testing

AUTHORS: Joseph Torrisi, Emily Drwiega, Sheetal Kandiah, Saira Rab, Shreena Advani

OBJECTIVE: Identify the most common reasons for inappropriate C. difficile testing.

SELF ASSESSMENT QUESTION: What was the most common reason for provider non-adherence to the stewardship tool?

BACKGROUND: Grady Health System (GHS) implemented a C. difficile infection (CDI) diagnostic stewardship tool to improve accurate diagnosis of infection, and prevent unnecessary treatment in colonized patients. The components of this tool include questions about patient stool burden, receipt of laxatives, and initiation of tube feeds that must be answered prior to ordering the C. difficile test. This study aims to assess providers' adherence to the CDI diagnostic tool at GHS.

METHODOLOGY: A retrospective chart review of 250 C. difficile tests performed between February 18, 2019 and February 17, 2020 was conducted. The primary outcome was the percent of C. difficile tests ordered that met composite adherence to the diagnostic stewardship tool. Composite adherence was defined as patients having > 3 stools in 24 hours without receipt of laxatives for 48 hours or initiation of tube feeds in 72 hours.

RESULTS: Of the 250 evaluable tests, 67% (n = 167) met composite adherence to the diagnostic stewardship tool. The most common reasons for non-adherence included a lack of stool documentation (n = 62) or the receipt of laxatives (n = 34). Forty-one (89%) of the 46 patients with positive tests that didn't meet composite adherence for testing, received CDI treatment. Patients with positive CDI tests not meeting composite adherence had a median iLOS of 13 days compared to 6 days for those meeting adherence.

CONCLUSIONS: Providers maintained adherence to the diagnostic stewardship tool for most CDI tests. Education to providers about laxative discontinuation prior to testing and nursing about the importance of quantifying stools in the medical chart is an area of improvement that may reduce the number of inappropriate CDI tests.

Presentation: <https://drive.google.com/file/d/1RCi3LElqKzEG6gmD7ZbSAAu1o4XRv0Ve/view?usp=sharing>

I Sustained Impact of an Antibiotic Stewardship Initiative Targeting Asymptomatic Bacteriuria and Pyuria in the Emergency Department

Presenters: Catie Cash

TITLE: Sustained Impact of an Antibiotic Stewardship Initiative Targeting Asymptomatic Bacteriuria and Pyuria in the Emergency Department

AUTHORS: Mary Catherine Cash, Garrett Hile, Jim Johnson, Tyler Stone, James Beardsley

OBJECTIVE: To describe the sustained impact of an antimicrobial stewardship initiative on the rate of inappropriate treatment of asymptomatic bacteriuria (ASB) and pyuria (ASP) in the Emergency Department (ED).

SELF ASSESSMENT QUESTION: Does a multi-faceted stewardship initiative result in a sustained improvement in inappropriate treatment of ASB and ASP in the ED?

BACKGROUND: A stewardship initiative targeting the inappropriate treatment of ASB and ASP in the ED of Wake Forest Baptist Medical Center was completed in November 2016. A pre-post intervention analysis demonstrated improvement in the rate of inappropriate treatment of ASB and ASP immediately following the intervention; however, its sustained impact is unknown.

METHODOLOGY: This study involves an assessment to determine the sustainability of the November 2016 initiative, a re-education initiative, and an assessment to determine the impact of the re-education. Patients will be included if they were ≥ 18 years old, discharged from the ED during one of the study periods, and had a positive urine culture or pyuria. Patients will be excluded if they had signs or symptoms of a urinary tract infection, another infection requiring antibiotics, an indwelling catheter, ureteral stent, or nephrostomy tube or if pregnant or immunocompromised. The primary outcome is the proportion of patients prescribed antibiotics within 72 hours of discharge from the ED. Secondary outcomes include the number of urine cultures ordered in the ED per 1,000 ED discharges and the number of patients returning to the ED with symptomatic UTI within 30 days of discharge. Patients in this study's pre-intervention (November 2019 – June 2020) will be compared to the 2016 study's post-intervention group to determine the sustained impact of the 2016 intervention. This study's pre-intervention group will be compared to this study's post-intervention group (November 2020 – June 2021) to determine the impact of re-education.

RESULTS: In progress.

CONCLUSIONS: In progress.

LINK TO PRESENTATION: https://youtu.be/SfL_ebmKhEM

Presenters: Kendra Ford

TITLE: Evaluation of Adherence to a Guideline-Based Acute Sickle Cell Pain Crisis Clinical Pathway

AUTHORS: Kendra Ford, Jasmine Jones, Danny Basri, Arielle Spurley

OBJECTIVE: Report the observed change in the clinical management of patients experiencing acute vaso-occlusive crises (VOC), before and after the implementation of an evidence-based clinical pathway.

SELF ASSESSMENT QUESTION: What is the recommended route and frequency of administration for opioid analgesia when managing acute VOC?

BACKGROUND: The Hospital Medicine service at Wellstar Kennestone Hospital implemented a sickle cell clinical pathway including an order set and supplemental opioid prescribing guideline in the summer of 2016 in alignment with the 2014 National Heart, Lung, and Blood Institute (NHLBI) recommendations. The order set includes an automatic consult for the clinical pharmacist pain specialist to perform a comprehensive pain assessment and provide recommendations for optimizing the analgesic regimen. Implementation of the pathway was intended to improve adherence to evidence-based guidelines, standardize care, and decrease time to pain control.

METHODOLOGY: A retrospective, single-center review of patients admitted for sickle cell pain crises was conducted to compare time to initiation of NHLBI guideline-recommended parenteral opioid therapy prior to and after implementation of the sickle cell clinical pathway. Secondary objectives included the pharmacist's impact on adherence to the NHLBI guidelines, the time to clinically significant reduction in pain score, consistency of pain control, the safety of the pathway, and the potential cost avoidance associated with implementation of the sickle cell clinical pathway.

RESULTS: Although not statistically significant, there was an improvement in adherence to the primary objective observed in the post-intervention group. The greatest improvement was seen in the number of patients that received scheduled parenteral opioid therapy within 24 hours of admission to the floor, which increased from 50% to 76%.

CONCLUSIONS: Overall, more patients received guideline recommended opioid therapy with the implementation of this order set. There is an opportunity for improvement to increase order set utilization and future work should include identifying and minimizing barriers to order set utilization.

https://drive.google.com/file/d/1eaTdQYJEqbtGctnqQ90_vQqcF2jcmHfe/view?usp=sharing

Presenters: Riley Jackson

TITLE: Task Generation in the EHR for Pharmacist Prioritization to Review Discharging Patients High at Risk of Readmission

AUTHORS: Riley Jackson, April Williams, Carly Steuber

OBJECTIVE: This project will optimize TOC pharmacist resources more effectively by focusing on higher-risk patients to decrease readmission rates.

SELF ASSESSMENT QUESTION: At the conclusion of my presentation, the participant will be able to describe characteristics of patients identified as high at risk of readmission.

BACKGROUND: Transitions of care pharmacists covering discharges are deployed to cover specified nursing units. Optimizing coverage and balancing workload has been attempted based on frequency of discharges from units. TOC does not have enough pharmacist FTEs to provide full coverage to all units nor substitutions if a pharmacist is off. The current design is for another TOC pharmacist to be assigned as on call for the units that are not covered the day that a pharmacist is off. This is in addition to their regular units that they cover. Within each assignment, a pharmacist is tasked with optimizing their own workflow. The pharmacist must choose which patients to review and counsel at their own discretion if there are too many discharges to cover. Evaluating each patient to organize workflow takes substantial time. Other institutions have software to assist with prioritizing workflow for pharmacists assisting with discharging a patient. Some institutions have this as a part of their Cerner production software.

METHODOLOGY: This project will institute a custom rule into Huntsville Hospital's Cerner Millennium production software to identify and alert TOC pharmacists by task generation about patients with atrial fibrillation, acute myocardial infarction, coronary artery bypass graft, chronic kidney disease, chronic obstructive pulmonary disease, diabetes mellitus, heart failure, and/or 2 inpatient/observation encounters within the last 26 weeks will have specific focus.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Payton Tipton

TITLE: Perceptions and Knowledge of Clinical Pharmacy Among Medical Residents in North Carolina

AUTHORS: Payton Tipton, R. Bowers, A. Mittleider, H. O'Brien, E. McClain

OBJECTIVE: Describe the perceptions and knowledge of clinical pharmacy among medical residents in North Carolina.

SELF ASSESSMENT QUESTION: According to medical residents in this survey, pharmacist involvement is important in which of the following services?

BACKGROUND: Limited data exists on the physicians' perceptions of clinical pharmacists in the United States. In North Carolina, pharmacists can enter into collaborative practice agreements with physicians, allowing them to assume responsibility for patient care services that would normally be beyond their scope of practice. However, this type of collaboration will only be successful if each side sees the value that the other provides to the team and knows of the services that they can provide. The purpose of this study is to identify gaps in understanding of clinical pharmacy and opportunities to increase interprofessional collaboration.

METHODOLOGY: This was a descriptive survey cohort study. The primary objective was to describe perceptions of clinical pharmacy services among medical residents. The secondary objectives were to describe the percentage of medical residents that have access to clinical pharmacy services and to compare the knowledge of available clinical pharmacy services by medical residents versus actual services provided as reported by pharmacists.

RESULTS: Forty-one medical residents in North Carolina completed the survey. Of these, 41.5% attended a private medical school with 75.6% having an MD degree. Majority of residents (58.5%) were a PGY3 or higher. Family medicine and emergency medicine residents were the most represented with 26.5% in each. One-hundred percent of residents felt that pharmacists were important or very important in answering drug information questions, while only 25% felt that pharmacists were important in vaccine administration. At least 50% of medical residents were aware of all pharmacy services available except for transitions of care, vaccine administration, and medication cost assistance.

CONCLUSIONS: Medical residents find pharmacist involvement to be most important in answering drug information questions. There is a continued need for education of medical residents on availability of pharmacy services.

Presenters: Morgan Moulton

TITLE: The impact of a hybrid learning model on student performance and perceptions in the pharmacotherapy I course

AUTHORS: Morgan Moulton, Devin Lavender, Russ Palmer, Beth Phillips, Rebecca Stone

OBJECTIVE: Identify the benefits and barriers seen in hybrid learning compared to face-to-face in a Pharm.D. Pharmacotherapy Course.

SELF ASSESSMENT QUESTION: What was one benefit seen in hybrid learning?

BACKGROUND: This purpose of this study was to evaluate the impact of a hybrid learning model on student performance and perception of learning in a second year (P2) Pharmacotherapy course.

METHODOLOGY: Data were evaluated in P2 students who completed traditional face-to-face learning in Fall 2019 (n=131) compared to a hybrid learning model in Fall 2020 (n=142). Exam scores, teammates evaluations, and survey responses, within course and end-of-course, were utilized. Discrete variables were analyzed using a student's t test, while categorical variables were compared using a Mann-Whitney U test. Thematic analysis was applied to all open-ended responses.

RESULTS: There was no difference observed in the average exam score between 2019 and 2020 (80.3 ± 8.2 vs 79.9 ± 8.2 , $p = 0.7$). When face-to-face, students reported an increased ability to actively listen ($U=6262.5$, $z = -2.91$, $p=0.004$), avoid distractions ($U=6238.5$, $z = -2.66$, $p=0.008$), and were more likely to react emotionally to a topic or instruction ($U=6595.5$, $z = -2.00$, $p=0.045$). Identified benefits of hybrid learning (n=65 responses) included flexibility that enhanced the learning environment (coded 34 times), videoconference technology supported communication and interactivity (coded 17 times), and students were able to focus and engage in learning (coded 16 times). Barriers (n = 45 responses) included challenges with the internet or other technology (coded 26 times), and preference for learning in-person (coded 27 times).

CONCLUSIONS: There was no difference in student performance between the learning models. An optimal hybrid model allows for a flexible learning environment with ample opportunity for face-to-face learning.

Presenters: Huy Luu

TITLE: Anticoagulation in Patients with Atrial Fibrillation after Bioprosthetic Valve Surgery

AUTHORS: Huy Luu, PharmD; Erin Puritz, PharmD, BCPS, BCCCP; Ceressa Ward, PharmD, BCPS, BCCCP, BCNSP; Michael Halkos, MD, MSC; David W. Boorman, MS

OBJECTIVE: Assess if DOACs are an appropriate alternative to warfarin in patients with AF after BVRS

SELF ASSESSMENT QUESTION: The incidence of thromboembolic complications and major bleeding events between DOACs and warfarin in patients with AF after BVRS is similar

BACKGROUND: ACC/AHA and CHEST guidelines recommend warfarin as the preferred anticoagulant to prevent thromboembolic complications after bioprosthetic valve replacement surgery (BVRS). Despite direct oral anticoagulants (DOACs) being approved for use in non-valvular atrial fibrillation (AF), data to support their use in patients with AF after BVRS is limited. The purpose of this study is to compare the efficacy and safety of DOACs and warfarin in preventing thromboembolic complications after BVRS in patients with underlying AF.

METHODOLOGY: A retrospective chart review from January 01, 2015 to June 30, 2020 was conducted. Eligible patients were adults who had history of AF prior to admission, received a DOAC or warfarin, and had a bioprosthetic aortic and/or mitral valve replacement. The primary outcome was the incidence of thromboembolic events at 30 day follow up. The safety outcome was the incidence of major bleeding at 30 day follow up.

RESULTS: Seventy six patients were included in the study with 53 patients in warfarin group and 23 patients in the DOAC group. At 30 days, 6 patients (11%) in the warfarin group experienced thromboembolic events compared to 2 patients (9%) in the DOAC group. At 30 days, major bleeding occurred in 10 patients (19%) in the warfarin treatment arm compared to 3 patients (13%) in the DOAC treatment arm. Of note, the majority of bleeding events occurred in the immediate postoperative period (53%).

CONCLUSIONS: The incidence of thromboembolic and major bleeding events in patients with a history of AF receiving either a DOAC or warfarin after BVRS appeared to be similar. Future large randomized studies are necessary to confirm that DOACs are similar to warfarin in preventing thromboembolic events in patients with concomitant AF immediately after BVRS.

Presenters: Michael Scott

TITLE: Analysis of Tranexamic Acid Utilization in Emergency Department Initiated Massive Transfusion

AUTHORS: Michael Scott, Jennifer Mando-Vandrick, Wennie Huang

OBJECTIVE: To describe risk factors contributing to TXA omission during MTP in the ED.

SELF ASSESSMENT QUESTION: Which of the following is the appropriate dosing for TXA in trauma? a)2 g over 10 minutes b)1 g over 24 hours c)1 g over 10 minutes followed by 1 g over 8 hours d)1 g over 10 minutes followed by 1 g over 24 hours

BACKGROUND: Tranexamic acid (TXA) is a synthetic lysine derivative that exerts its antifibrinolytic action by binding the lysine receptor site on plasminogen. This results in the inability of plasmin to degrade fibrin, thus inhibiting fibrinolysis. Studies have demonstrated that administering TXA (1 gram bolus over 10 minutes followed by 1 gram infusion over eight hours) within three hours of injury to trauma patients with or at risk for significant bleeding reduces the risk of death from hemorrhage.

METHODOLOGY: The primary outcome of this single-center retrospective cohort study is to evaluate risk factors for the omission of TXA during MTP initiated in the ED. Risk factors to be assessed include utilization of the TXA MTP orderset, ED pharmacist presence, ED length of stay, ED disposition location, mechanism of injury, Glasgow Coma Scale (GCS) score upon ED arrival, and trauma level (I, II, or III). Secondary objectives are to determine the effect of TXA administration during MTP on intensive care unit length of stay, hospital length of stay, mortality, and vascular occlusive events.

RESULTS: In progress

CONCLUSIONS: In progress

R Evaluation of quetiapine therapy on difficulty of extubation among mechanically ventilated ICU patients receiving dexmedetomidine for sedation

Room D

Presenters: Sarah Vines

TITLE: Evaluation of quetiapine therapy on difficulty of extubation among mechanically ventilated ICU patients receiving dexmedetomidine for sedation

AUTHORS: Sarah E. Vines, PharmD; J. Luke Britton, PharmD, BCPS; Kelly G. Gandy, PharmD, MPH, BCPS

OBJECTIVE: Describe the role of quetiapine in mechanical ventilator weaning among difficult to wean patients

SELF ASSESSMENT QUESTION: True or false: Quetiapine may be useful to decrease time of mechanical ventilation in difficult to wean patients.

BACKGROUND: To determine the effect of quetiapine on ease of extubation in mechanically ventilated ICU patients receiving dexmedetomidine for sedation.

METHODOLOGY: This study is an IRB approved, retrospective chart review. Study population was identified from patients aged 19 and older admitted to Jackson Hospital ICU between January 1, 2019 and December 31, 2019, who received dexmedetomidine for sedation while ventilated. Patients were determined to have simple or complicated wean from mechanical ventilation based on time of extubation after first successful spontaneous breathing trial. Outcomes were evaluated using data-appropriate statistical analyses.

RESULTS: Eighty-one patients were included where 15 patients received dexmedetomidine plus quetiapine and sixty-six received dexmedetomidine alone. Among patients receiving quetiapine, a statistically significant difference was observed with 53.3% meeting criteria for simple ventilator wean compared to 19.7% in the non-quetiapine group. A statistically significant difference was also observed when comparing rates of delirium between the two groups. Other secondary outcomes that approached statistical significance included length of stay, time of ventilation, and reintubation rates.

CONCLUSIONS: Quetiapine may be useful to facilitate ventilator weaning among patients that are difficult to wean with dexmedetomidine alone. It is possible that managing underlying delirium with quetiapine, but further investigation is required to determine definite correlation.

R Impact of an enhanced recovery after surgery (ERAS) protocol on postoperative outcomes in cardiac surgery patients

Room C

Presenters: Stephanie Bills

TITLE: Impact of an enhanced recovery after surgery (ERAS) protocol on postoperative outcomes in cardiac surgery patients

AUTHORS: Stephanie Bills, Brittany Wills, Samara Boyd, Joseph Elbeery

OBJECTIVE: Identify if utilization of an ERAS protocol decreases the use of postoperative opioids following cardiac surgery.

SELF ASSESSMENT QUESTION: What is the benefit of utilizing an ERAS protocol in cardiac surgery patients?

BACKGROUND: Enhanced recovery after surgery (ERAS) protocols are multimodal perioperative care pathways designed to achieve early recovery after surgical procedures. ERAS protocols have proved to shorten recovery time, and lower opioid utilization and postoperative complication rates, all while being cost-effective. The evidence to support the use of ERAS protocols spans various patient populations, however, minimal data exists in post-operative cardiac surgery patients.

METHODOLOGY: This observational cohort study compared adult patients receiving post-operative care after on-pump coronary artery bypass (CABG) or valve procedures who received an ERAS protocol containing acetaminophen, gabapentin, and methocarbamol to historical controls. The primary objective of this study was to determine if the utilization of an ERAS protocol decreases postoperative opioid use during the first 72 hours following cardiac surgery. Secondary objectives included total postoperative and intensive care unit length of stay, average pain scores 72-hours post-operatively, and incidence of opioid-related complications.

RESULTS: There was a trend towards a reduction in opioid use within 72 hours in the ERAS protocol group (n=133) compared to the historical control group (n=185). Pain control was similar between groups. Opioid-related complications occurred more in the control group regarding constipation (ERAS 47.4% vs control 60.5%; p<0.05) and respiratory depression (ERAS 57.1% vs control 62.7%; p<0.05).

CONCLUSIONS: Use of an ERAS protocol shows promising trend toward less opioid use in cardiac surgery patients. ERAS protocol group achieved similar, and slightly better pain control compared to the historic control group. Post-operative length of stay not impacted. Lower rates of opioid-related adverse events (respiratory depression and constipation).

Link to presentation: <https://youtu.be/nG2Sxy03Vzw>

I **Dalbavancin Compared to Standard of Care for Outpatient treatment of Methicillin-Resistant Staphylococcus aureus Infections in People Who Inject Drugs** Room H

Presenters: Mary Beth Bryant

TITLE: Dalbavancin Compared to Standard of Care for Outpatient treatment of Methicillin-Resistant Staphylococcus aureus Infections in People Who Inject Drugs

AUTHORS: Bryant ME, Yeager SD, Wright LR, Shorman M, Veve MP

OBJECTIVE: Describe the role of dalbavancin in the treatment of invasive MRSA infections in PWID.

SELF ASSESSMENT QUESTION: How does dalbavancin compare to outpatient vancomycin/daptomycin in PWID with MRSA infections in terms of 90-day infection related readmission?

BACKGROUND: People who inject drugs (PWID) are at risk for developing invasive methicillin-resistant Staphylococcus aureus (MRSA) infections. The use of prolonged outpatient intravenous antibiotics is controversial in PWID due to the risk of catheter manipulation and decreased adherence. Dalbavancin may have a role in treating PWID with MRSA infections, but comparative data are limited. This study compared dalbavancin to standard of care (SOC), or daptomycin and vancomycin, for invasive MRSA infections in PWID.

METHODOLOGY: Retrospective cohort performed among adult hospitalized patients with confirmed or suspected MRSA infections treated with outpatient dalbavancin or SOC from 1/2011-11/2020. Patients with a history of or active injection drug use were included. Primary outcome was a composite of 90-day infection-related readmission (IRR), including clinical worsening on treatment, infection relapse following treatment completion, or treatment-related adverse event requiring rehospitalization.

RESULTS: 161 patients included: 69 (43%) dalbavancin and 92 (57%) SOC. The most common infection types were: bone/joint (41%), endocarditis (37%), other bloodstream infections (13%), and skin/abscess (9%). Endocarditis was more common in patients who received SOC (42% vs. 29%, $P=0.08$). 90-day IRR was less frequent in patients who received dalbavancin compared to SOC (15% vs. 33%, $P=0.008$). While there were no differences in clinical worsening or infection relapse, patients who received SOC were more likely to experience a treatment-related adverse event requiring hospitalization (1% dalbavancin vs. 19% SOC, $P=0.001$). Of the 17 treatment-related adverse events requiring readmission in the SOC group, 12 were related to invasive line complications.

CONCLUSIONS: Dalbavancin had similar efficacy to SOC in treating confirmed or suspected invasive infections due to MRSA in PWID, but was less frequently associated with adverse events requiring rehospitalization.

<https://youtu.be/WHK-qNDRYqg>

I **Driving Value-Based Care Utilizing Outcomes and Antibiotic Use Data** Room I

Presenters: Judy Braich

TITLE: Driving Value-Based Care Utilizing Outcomes and Antibiotic Use Data

AUTHORS: Judy Braich, Joy Peterson, Rina Nath, Danny Branstetter, Nicole Eubanks

OBJECTIVE: List potential outcomes that may guide providers when prescribing antimicrobials.

SELF ASSESSMENT QUESTION: Name one outcome providers can use to compare their prescribing habits to others within the health system.

BACKGROUND: The overuse and misuse of antibiotics has led to increasing antimicrobial resistance, rising healthcare costs and an increase in healthcare associated infections. Wellstar Health System already utilizes a dashboard to track overall antibiotic use, however opportunity exists to provide more meaningful and holistic antibiotic use data. The purpose of this project is to develop a system wide, real time, anti-infective dashboard that tracks provider spend and other quality metrics on common and costly infectious disease diagnosis related groups (DRGs).

METHODOLOGY: This was a retrospective quality improvement project that assessed data within the previous fiscal year. With the assistance of Wellstar's EI and IT departments, a trial dashboard was built for review. The dashboard included data from all Wellstar Health System Hospitals. Common infectious disease DRGs were explored and narrowed based on the accuracy of the data retrieved. Additional DRGs will be included once the dashboard is implemented and necessary adjustments are made. Outcomes of interest included duration of therapy, pharmacy and laboratory spend, length of stay, hospital readmissions and 30-day mortality.

RESULTS: After the final data points and outcomes of interest were determined, the idea was presented to key stakeholders within WHS. Stakeholders provided positive feedback on this quality improvement initiative. The Wellstar Business Intelligence team is currently in the process of developing the final product in Tableau®. The final dashboard is expected to be completed in 2-3 months.

CONCLUSIONS: The implementation of a system wide, real time, anti-infective dashboard will drive value based care. Meaningful data involves the use of real time quality metrics with the ability to compare Wellstar facilities and physician specialties. Comparison of these outcomes will encourage providers to practice greater antimicrobial stewardship while maintaining high level quality care.

I Evaluation of antibiotic duration of therapy for ventilator-associated tracheitis in children with pre-existing tracheostomies Room J

Presenters: Victoria Urban

Link to Presentation: <https://vimeo.com/538909035>

Evaluation of antibiotic duration of therapy for ventilator-associated tracheitis in children with pre-existing tracheostomies

Victoria Urban, Kelley Norris, Christopher Campbell

Augusta University Medical Center/ University of Georgia College of Pharmacy

Objectives: This study aims to describe ventilator associated tracheitis (VAT) in pediatric patients with pre-existing tracheostomies and determine the impact of treating VAT for 7 days or less, compared to 8 days or more, on incidence of ventilator associated pneumonia (VAP).

Patients and Methods: This is a retrospective chart review of pediatric patients with pre-existing tracheostomies admitted to the Children's Hospital of Georgia to be treated for the first time for VAT between January 1, 2007 and February 21, 2021. Patients were divided into those who received 7 days or less, compared to 8 days or more, of antibiotics. Primary outcome is incidence of VAP. Secondary outcomes include tracheostomy cultures, antibiotic choice, and length of stay (LOS).

Results: Thirty-nine patients were included. There was no difference in the development in VAP between shorter and longer treatment durations (0 vs 1, $p = 1$). Patients who developed *Pseudomonas aeruginosa* VAT were likely to have a previous culture of *P. aeruginosa* ($p = 0.003$), have a tracheostomy for longer ($p = 0.011$), and be older than 1 year of age ($p = 0.0002$). Empiric treatment with *P. aeruginosa* was associated with a previous culture growing *P. aeruginosa* ($p = 0.003$). Twenty-six percent of patients growing *P. aeruginosa* were not covered by empiric therapy.

Conclusions: Due to the low incidence of VAP in both groups, no difference could be determined. Results suggest empiric treatment of VAT should be based on previous culture results. For a first hospitalization treating VAT, empiric coverages should include coverage for *P. aeruginosa*.

M Evaluation of a Pediatric Protocol on Venous Thromboembolism and Timing of Anti-Xa Levels Room F

Presenters: Clayton Rosenbaum

TITLE: Evaluation of a Pediatric Protocol on Venous Thromboembolism and Timing of Anti-Xa Levels

AUTHORS: Clayton A Rosenbaum, Heather Hughes, Alex Ewing

OBJECTIVE: Identify the possible role of intervention pharmacist may play in a newly adapted pediatric risk scoring tool for the initiation of venous thromboembolism prophylaxis

SELF ASSESSMENT QUESTION: When should anti-Xa levels be drawn for patients on a Q12H enoxaparin dosing regimen?

BACKGROUND: Prisma Health – Upstate has created a risk scoring tool to evaluate venous thromboembolism (VTE) risk in the pediatric population that was implemented in August 2020. Even though the clinical incidence of VTE in the pediatric population is low, there are many times that processes surrounding treatment are improperly done. This protocol was designed to also help with the appropriate collection of anti-Xa levels and guideline-based dosing of enoxaparin. The conclusions from this study should help to determine how pharmacists may be integrated into the protocol firing process to allow for meaningful collaboration between pharmacy and physicians in the matter of initiating and monitoring VTE prophylaxis in pediatric patients.

METHODOLOGY: This study is a single-center, retrospective, pre-and-post analysis evaluating the utility of a newly adapted pediatric protocol for the initiation of venous thromboembolism (VTE) prophylaxis. We identified pediatric patients that received VTE prophylaxis between February 2020 – July 2020 and August 2020 – December 2020 when the protocol was created. Our primary outcomes were appropriate timing of anti-Xa levels and compliance to protocol. Secondary outcomes included amount of anti-Xa levels collected, anti-Xa level in goal %, physician refusal %, weight and age-appropriate dosing, and bleeding event occurrence.

RESULTS: The amount of anti-Xa levels collected within the protocol time frame in the pre-and-post analysis was 9% vs 23% (p -value 0.167) The median number of anti-Xa levels was 4 vs 1 respectively (p -value 0.006). The protocol fired 5144 times, accepted 99 times and used in 11 patients.

CONCLUSIONS: Protocol implementation decreased the number of anti-Xa levels collected. Physician fatigue could be the main cause of the high protocol override percentage. Pharmacy was responsible for 78% of anti-Xa levels collected. The protocol implementation did not produce more accurate timing of anti-Xa level collection.

<https://youtu.be/rPQfrapk68U>

O Evaluation of healthcare-associated infections in patients with hematologic malignancies and stem cell transplantation during the COVID-19 pandemic

Presenters: Laura Bobbitt

TITLE: Evaluation of healthcare-associated infections in patients with hematologic malignancies and stem cell transplantation during the COVID-19 pandemic

AUTHORS: Laura Bobbitt, Katie Gatwood

OBJECTIVE: Describe changes in healthcare-associated infection rates during the COVID-19 pandemic.

SELF ASSESSMENT QUESTION: (true/false) Did the incidence of hospital-acquired infections decrease during the COVID-19 pandemic?

BACKGROUND: Due to the COVID-19 pandemic, there has been an escalation of hygiene practices, both in the hospital and the community, such as universal masking, increased hand hygiene, and social distancing. Malignant hematology and stem cell transplant patients are at an increased risk of infections which can have significant morbidity and mortality in this population. The purpose of this study was to evaluate whether the rates of healthcare-associated infections changed during the COVID-19 pandemic.

METHODOLOGY: We performed a retrospective cohort study of adult malignant hematology and stem cell transplant patients admitted between March 1, 2019 through July 31, 2019 and March 1, 2020 through July 31, 2020. The 2019 cohort served as the contemporary, pre-COVID-19 comparator arm and was compared to the 2020 cohort in which increased hygiene practices were in place. The primary outcome of the study was the incidence of catheter-associated urinary tract infections, central line-associated bloodstream infections, and *Clostridioides difficile* infections. Secondary outcomes included infection-related mortality, number of admissions for neutropenic fever, change in rate of identifiable cause of neutropenic fever, and hospital length of stay.

RESULTS: In Progress

CONCLUSIONS: In Progress

<https://youtu.be/Q-pnlgewnrA>

A Seroconversion rate of Heplisav-B vaccine in patients with end stage renal disease (ESRD)

Presenters: Lindsey Lindsey

TITLE: Seroconversion rate of Heplisav-B vaccine in patients with end stage renal disease (ESRD)

AUTHORS: Lindsey Lindsey, Conner Walsh, Kathryn McDainel, Ted Walton, Sarah Johnson

OBJECTIVE: List potential benefits of Heplisav-B vaccine in ESRD patients.

SELF ASSESSMENT QUESTION: What is the rate of seroconversion for Heplisav-B vaccine in patients with ESRD?

BACKGROUND: Hemodialysis (HD) patients have increased risk for contracting hepatitis B infection through exposure to blood products, shared HD equipment, frequent skin breaching, and overall immunodeficiency. Traditional hepatitis-B (HBV) vaccines such as Recombivax-HB and Engerix-B have an approximate efficacy of 70 – 75 % in this patient population. A new recombinant HBV vaccination, Heplisav-B, does not have FDA approval for special populations, specifically patients with ESRD on HD. However, improved seroconversion rates in other population with Heplisav-B poses many potential benefits to HD patients making it of interest in this patient population.

METHODOLOGY: Heplisav-B was administered as a 3 dose course, each vaccine was administered at minimum 4 weeks apart with titers drawn 4 ± 2 weeks post vaccination series. Patients with ESRD who are HBV vaccine naïve or have a negative surface antigen test, and who are indicated for the HBV vaccination were eligible for the study. Patients were excluded if they deviated from the dosing schedule, had a history of seroconversion, < 18 years of age, pregnant, or incarcerated. The primary outcome was the percent of patients who seroconverted with an anti-HBs titer > 10 IU/mL 4 weeks after the last dose of Heplisav-B vaccine. Secondary outcomes were seroconversion failure stratified by diabetes, use of immunosuppressive therapy, and number of weekly dialysis sessions. The goal is to discern the seroconversion rates in ESRD patients on HD and the impact of immunocompromising states on conversion rates.

RESULTS: Thirty-two patients received the initial dose of vaccine between January 2020 and May 2020 and 24 patients were included. This study showed 84% seroconversion in the 24 patients who completed the vaccination series.

CONCLUSIONS: Heplisav-B had increased seroconversion rates in patients with ESRD compared to conversion rates of Recombivax-HB and Engerix-B.

Presentation link: https://drive.google.com/file/d/1tRVYIPak_vVBjUx7dGAYf3eTXD8zUuFa/view?usp=sharing

B Clinical and Financial Impact of Pharmacists through the Implementation of a Medicare Annual Wellness Visit Service

Room K

Presenters: Aneet Patel

TITLE: Clinical and Financial Impact of Pharmacists through the Implementation of a Medicare Annual Wellness Visit Service

AUTHORS: Aneet Patel, Jamie Coates, Amanda Stankowitz, Alexander Tunnell

OBJECTIVE: Determine the clinical and financial impact of pharmacists in an outpatient clinic through the implementation of a Medicare Annual Wellness Visit service (AWV).

SELF ASSESSMENT QUESTION: Can a pharmacist-led Medicare AWV service impact clinical and financial outcomes in an outpatient clinic?

BACKGROUND: Medicare AWVs are offered at no cost to eligible Medicare beneficiaries to promote general wellness and improve utilization of preventative measures. Prior studies have shown financial impact and clinical interventions made by pharmacists. However, opportunities exist to understand the impact AWVs may have on hospital visits. Therefore, the purpose of this project is to determine the clinical and financial impact of pharmacists in an outpatient clinic through the implementation of a Medicare AWV service.

METHODOLOGY: A pharmacist-led AWV service was implemented at Anderson Health Center (AHC). The study period includes patients seen for AWVs from September 1st, 2020, through August 31st, 2021. Patients who are age 65 years or older and are referred by the AHC Resident Medicine Clinic will be included in the study. Patients will be excluded if they have not been seen by an AHC provider within two years prior to referral or if they are admitted to the emergency center or hospital on the day of their AWV. The primary outcome is to determine the rate of hospital admissions and emergency center visits pre- and post-implementation of the Medicare AWV service. To assess the impact of this service, hospital admissions will be monitored one year prior to and one year after the date of the AWV. Secondary outcomes include the quantity and types of interventions made as well as the total revenue generated from the implementation of a pharmacist-led AWV service.

RESULTS: In Progress. Final results anticipated September 2022.

CONCLUSIONS: In Progress.

PRESENTATION LINK: <https://youtu.be/gJdGag9EIIU>

B Stimulant Misuse in Pregnant Patients at a Rural Perinatal Substance Use Program

Room J

Presenters: Olivia Caron

TITLE: Stimulant Misuse in Pregnant Patients at a Rural Perinatal Substance Use Program

AUTHORS: Olivia A. Caron, PharmD, Melinda Ramage, MSN, FNP-BC, CARN-AP, and Shelley L. Galvin, MA

OBJECTIVE: To compare Project CARA clients with versus without StMU on characteristics, engagement in integrated care, and birth outcomes.

SELF ASSESSMENT QUESTION: What is the current trend of stimulant misuse among pregnant women?

BACKGROUND: In 2019, nearly 1,000 pregnant women misused methamphetamine, 3,000 misused cocaine, and 7,000 misused prescription stimulants. This marks a significant rise in reported stimulant misuse since 2016. The CDC reports that 32.6% of drug overdoses involved opioids and stimulants, and 12.7% involved only stimulants. Currently, treatment revolves around psychotherapy as there is no FDA approved pharmacotherapy.

Project CARA, Care that advocates Respect, Resilience, and Recovery for All, is an obstetrician-gynecologist office housed at Mountain Area Health Education Center (MAHEC) in Western North Carolina. MAHEC first offered integrated substance use treatment services within obstetrical visits in the late 1990s and has grown since 2014 to provide comprehensive perinatal substance use care using current evidence-based practices. Project CARA offers services to pregnant and postpartum patients with any substance use disorder, but has primarily treated patients affected by opioid use disorder.

The intention of this project is to assess if there has been an increase in stimulant misuse and dependence (StMU) over the 5 year evolution of the program, and if so, are there differences in this patient population. Differences in demographics, engagement in care, and birth outcomes were assessed.

METHODOLOGY: Patients identified with StMU (self-report, UDS+, documented Hx) were compared to those without StMU via t-test, chi square, or Fisher exact tests in a secondary analysis of clinical program data. The identified patients were engaged in care at Project CARA from 2014 through 2018.

RESULTS: Identification of StMU among pregnant women increased from 18.6% to 38.8% over the past five years. The 29.0% (172/594) of women with StMU were similar in age, race/ethnicity, and parity compared to other patients ($p>0.05$). They were more likely to have Medicaid, use tobacco, have concurrent infectious disease, and comorbid psychiatric disorders. Among the patients with OUD, those with concurrent StMU were less likely to be on OUD medication (44.6% v. 91.4%, $p=0.040$) though they were equally likely to attend expected integrated care visits (66.5% v. 66.8%, $p=0.933$). They were more likely to seek adjunctive SUD treatment (72.7% v. 52.4%, p

R Impact of a Clinical Decision Support System (CDSS) Alert on Medication Administration Discrepancies in the Emergency Department Room B

Presenters: Elizabeth Pollard

TITLE: Impact of a Clinical Decision Support System (CDSS) Alert on Medication Administration Discrepancies in the Emergency Department

AUTHORS: Elizabeth Pollard, Tanner Shields, Brad Crane

OBJECTIVE: At the conclusion of my presentation, the participant will be able to recognize the potential impact of a CDSS alert in the emergency department.

SELF ASSESSMENT QUESTION: What are some examples of potential benefits of utilizing a CDSS alert in the emergency department?

BACKGROUND: Based on previous analyses in the emergency department (ED) at Blount Memorial Hospital (BMH), it is estimated 2.5 of every 100 medications removed from the automated dispensing machines (ADM) do not have documentation of being administered or returned to the ADM. This suggests medications are either administered without documentation, wasted, incorrectly removed under the wrong patient, or potentially diverted. BMH implemented a Clinical Decision Support System (CDSS) in August of 2020. A CDSS alert was built to identify when medications are removed from an ED ADM due to either (1) no documentation of administration within two hours or (2) no return to the ADM within two hours (discrepancy). A CDSS alert could reduce discrepancies, resulting in improved medical record accuracy and less missed medication charges.

METHODOLOGY: This study was an IRB approved retrospective cohort analysis. Patients were included when medications removed from an ED ADM triggered a CDSS alert due to either (1) no documentation of administration within two hours or (2) no return to the ADM within two hours. Patients were excluded if the medication was documented as administered after two hours, returned to an ADM after two hours, documented as waste, presumed waste after investigation, removed under the wrong patient, removed as the wrong dosage form, or if the outcome was unable to be determined. Administration discrepancy rates and financial impact were compared before and after an intervention (CDSS alert and nurse education) was implemented.

RESULTS: The baseline administration discrepancy rate was found to be 0.64 per 100 medications removed resulting in an estimated \$23,000-\$52,000 in missed charges per year. Post-intervention data collection is still in progress.

CONCLUSIONS: In progress.

<https://tennessee.zoom.us/rec/share/3jIDrL2XyVvKgNBqxIAho2ejC6xYZ5b5hCkSRJGFGk5BHdtJiJXbUrRAYIr3ndoQ.LyKnRB1TtstartTime=1618832782000>

R Impact of nursing driven replacement protocol vs standard practice on electrolyte replacement time Room D

Presenters: Margaret Hodges

TITLE: Impact of nursing driven replacement protocol vs standard practice on electrolyte replacement time

AUTHORS: Margaret Hodges, PharmD; Ashley Beckwith, PharmD; Drew Kessell, PharmD, MBA, MS

OBJECTIVE: To determine if a nursing driven electrolyte replacement protocol reduces the time to electrolyte replacement in critically ill patients.

SELF ASSESSMENT QUESTION: Does a nursing driven protocol impact the time to electrolyte replacement in critically ill patients?

BACKGROUND: Patients admitted to the intensive care unit (ICU) frequently require electrolyte replacement. Following an order, a nursing driven electrolyte replacement based on pre-defined lab parameters is utilized by many hospitals to expedite replacement and decrease call volume to providers.

METHODOLOGY: A retrospective observational study will be conducted to assess the time to electrolyte replacement in patients admitted to the Moore Regional Hospital ICUs between October 1, 2019 – December 31, 2019. Patients will be placed into two groups based upon presence or absence of ordered electrolyte protocol. Patients requiring magnesium, phosphorus or potassium replacement will be included. Data elements to be evaluated include age, gender, time specimen drawn and resulted, measured serum magnesium, phosphorus or potassium, time medication ordered and administered, replacement dose, potassium product ordered, dispense location, and ICU length of stay prior to protocol order. Patients with renal dysfunction, receiving dialysis, DKA or rhabdomyolysis will be excluded, as well as, those who are pregnant or under the age of 18.

RESULTS: In Progress

CONCLUSIONS: In Progress

R Incidence of thrombotic complications related to weight-based dosing of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients

Room C

Presenters: Caitlyn Whitaker

TITLE: Incidence of thrombotic complications related to weight-based dosing of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients

AUTHORS: Caitlyn Whitaker, PharmD, Amanda Mckinney, PharmD, BCCCP, Reagan Bollig, MD, Nathan Hieb, MD, R. Frank Roberts, Jr., MD, FACS, A. Shaun Rowe, Pharm.D., M.S, BCCCP, FNCS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the potential adverse effects of utilizing aPCC in patients requiring DOAC reversal.

SELF ASSESSMENT QUESTION: Which of the following is a risk factor for the development of a thrombotic event following aPCC administration? a. Doses of > 200u/kg/day b. Sepsis c. Crush injury d. Advanced atherosclerotic disease e. All of the above

BACKGROUND: Factor eight inhibitor bypassing activity (aPCC) is recommended as a non-specific reversal agent for direct oral anticoagulants (DOACs) according to the 2017 American College of Cardiology (ACC) guidelines for reversal of anticoagulation. aPCC carries a black box warning for thrombotic events such as stroke, pulmonary embolism, deep vein thrombosis, and myocardial infarction, particularly at high doses. The purpose of this investigation is to determine the incidence of thrombotic complications with weight-based doses of factor eight inhibitor bypassing activity (aPCC) for DOAC reversal in obese patients, in whom higher doses of aPCC are used.

METHODOLOGY: This is a retrospective, single-center, cohort investigation. Patients who received a weight-based dose of Factor eight inhibitor bypassing activity (aPCC) for direct oral anticoagulant (DOAC) reversal between January 1, 2015 and December 31, 2020 were included. Patients were excluded if they are less than 18 years of age, their aPCC dose or administration was not properly documented, or if they received aPCC for an indication other than DOAC reversal. Patients were grouped by BMI as obese (BMI \geq 30kg/m²) or non-obese (BMI < 30kg/m²) for analysis. The primary outcome of this investigation was occurrence of thrombotic complications (venous thromboembolism [VTE], myocardial infarction [MI], stroke) documented in the medical record at any point during hospitalization after administration of aPCC. Secondary outcomes include in-hospital mortality, ICU and hospital length of stay, and incidence of bleeding complications.

RESULTS: In progress.

CONCLUSIONS: In progress.

https://www.youtube.com/watch?v=Tjwwav_3S8I&feature=youtu.be

I Evaluating the real world use of dalbavancin for off-label indications

Room H

Presenters: Katherine Taylor

TITLE: Evaluating the real world use of dalbavancin for off-label indications

AUTHORS: Katherine Taylor, Jim Johnson, John Williamson, Tyler Stone, Zach Gruss, Jim Beardsley

OBJECTIVE: Describe the effectiveness of dalbavancin for off-label indications.

SELF ASSESSMENT QUESTION: Is dalbavancin an appropriate treatment option for certain off-label indications?

BACKGROUND: The purpose of this study is to evaluate the use of dalbavancin for off-label indications at Wake Forest Baptist Health.

METHODOLOGY: This study is a single health system, retrospective, observational study. Adult patients who received dalbavancin for an off-label indication from January 2018 to January 2020 will be included. Patients who are pregnant or have a concomitant infection caused by a pathogen not covered by dalbavancin will be excluded. The primary outcome is clinical success at 90 days defined as no need for additional antibiotics (excluding suppression therapy) or surgical intervention following the last dose of dalbavancin and no positive cultures associated with the dalbavancin-targeted infection growing the same organism(s) as initial cultures. Secondary outcomes include safety (nephrotoxicity, hepatotoxicity, antibiotic-related reactions, and serious adverse effects) and economic impact related to hospital length of stay and antibiotic expenditures.

RESULTS: A total of 50 patients met inclusion criteria. The primary outcome occurred in 87% of patients. No nephrotoxicity or hepatotoxicity was noted. Additionally, it was estimated that there were 1,078 institutional days saved by using dalbavancin instead of the standard of care.

CONCLUSIONS: Dalbavancin was associated with a reasonable success rate with minimal side effects for the treatment of various off-label indications. Additionally, Dalbavancin has the potential to reduce cost when compared to the standard of care.

VIDEO LINK: <https://youtu.be/ApIQRX0PLZY>

I **IMPACT OF TRANSITIONING IV CEFTRIAXONE TO AN ORAL ANTIBIOTIC IN THE TREATMENT OF URINARY TRACT INFECTIONS IN THE INPATIENT SETTING**

Room I

Presenters: Kelsey Rensing

TITLE: Impact of transitioning IV ceftriaxone to an oral antibiotic in the treatment of urinary tract infections in the inpatient setting

AUTHORS: Kelsey Rensing, PharmD, Joseph Crosby, PhD, RPh, Geneen Gibson, PharmD, MS, BCPS (AQ-ID), Maggie McCarty, PharmD candidate, Emilee Robertson, PharmD, BCPS

OBJECTIVE: Identify the clinical outcomes associated with a transition from IV ceftriaxone to an oral antibiotic.

SELF ASSESSMENT QUESTION: What is the most common reason for a patient to not be switched from IV ceftriaxone to an oral antibiotic?

BACKGROUND: To determine if the hospital length of stay was reduced in those patients with a transition of antibiotic therapy from intravenous (IV) ceftriaxone to an oral antibiotic in adult patients with urinary tract infections.

METHODOLOGY: A computer-generated list identified adult patients admitted to St Joseph's and Candler hospitals diagnosed with an ICD-10 code indicating UTI diagnosis initially treated with IV ceftriaxone. Patients were excluded for: inability to receive oral therapy at 48 hours, antibiotic for a source of infection other than UTI, pregnancy, three or more organisms present in urine culture. Treatment outcomes were evaluated if the patient was able to be switched from an IV to oral antibiotic while inpatient. Length of stay, length of antibiotic treatment, positive bacterial culture, presence or urinary catheter and eligibility for existing IV to oral transition criteria were recorded.

RESULTS: The computer generated list identified 101 patients who were given intravenous ceftriaxone for a urinary tract infection over a five-year span, and only 27 met our inclusion/exclusion criteria. Two out of the 27 patients were switched from intravenous ceftriaxone to an oral antibiotic. Due to this small sample size, we were unable to determine any link between length of stay and the switch from intravenous to oral antibiotics.

CONCLUSIONS: Further studies are needed to evaluate the relationship between transitioning from intravenous to oral antibiotics for the treatment of urinary tract infections in the inpatient setting. We observed that different methods of finding patients who met our inclusion criteria may have been beneficial in obtaining a larger sample size. A retrospective analysis was completed to determine which patients could have been transitioned to an oral antibiotic, and what the most appropriate oral antibiotic choice would have been based on the IDSA guidelines and patient specific factors. Of the 27 patients in our study, 19 could have been switched to oral antibiotic therapy.

Presentation link: <https://youtu.be/vWnfSv5-vgY>

L **A Comparison of Sodium Zirconium Cyclosilicate and Sodium Polystyrene Sulfonate in Adult, Hospitalized Patients with Hyperkalemia**

Room E

Presenters: Taylor Teshon

TITLE: A Comparison of Sodium Zirconium Cyclosilicate and Sodium Polystyrene Sulfonate in Adult, Hospitalized Patients with Hyperkalemia

AUTHORS: Taylor R. Teshon, Hannah M Young, Amanda S. Moyer

OBJECTIVE: To compare the efficacy of sodium zirconium cyclosilicate (SZC) and sodium polystyrene sulfonate (SPS) in adult, hospitalized patients with hyperkalemia.

SELF ASSESSMENT QUESTION: Was SZC more effective than SPS in achieving normokalemia in the treatment of acute hyperkalemia in this study?

BACKGROUND: SPS and SZC are potassium-binding agents with different cation-binding capabilities and onsets of action. There is no data directly comparing these agents. The purpose of this study was to determine if SZC lowers serum potassium levels more effectively than SPS in the treatment of acute hyperkalemia.

METHODOLOGY: A retrospective study was conducted among adult, hospitalized patients with acute hyperkalemia at Prisma Health Richland. Adult patients with hyperkalemia ($K > 5.2$ mEq/L) who received a study agent from September 2018 through August 2020 were included. Patients were mainly excluded if they were on renal replacement therapy; an insulin, bicarbonate, or loop diuretic continuous infusion; or chronic SZC/SPS. The primary objective was to determine if there was a difference in the number of patients who achieved normokalemia when comparing patients treated with SZC or SPS at 24 hours after drug administration. Secondary objectives included comparisons of absolute serum potassium reduction and the number of patients with life-threatening hyperkalemia ($K > 6.5$ mEq/L) who achieved normokalemia.

RESULTS: There were 71 patients included in the SZC group and 96 in the SPS group. There was no difference in the primary outcome, with 66.2% of patients in the SZC group and 72.9% of the SPS group achieving normokalemia ($p=0.349$). There was no difference in the average absolute reduction in serum K between SZC and SPS (0.8 mEq/L in both groups, $p=0.5$), nor was there a difference in the number of patients that achieved normokalemia in life-threatening hyperkalemia between SZC and SPS (33.3% vs 60%, $p=0.608$). A subgroup analysis of the primary endpoint showed that SPS was significantly better than SZC when used without a potassium shifting agent or as the only potassium reducing agent.

CONCLUSIONS: There was no difference in the efficacy of SZC and SPS when used in a multimodal treatment strategy for the treatment of acute hyperkalemia in this study.

Presenters: Sherwyn Tenia

TITLE: Variance analysis of smart pump settings vs EHR documentation in a non-integrated environment

AUTHORS: Sherwyn Tenia, Terry Bosen, Diana Mulherin, Joshua Sellers

OBJECTIVE: Explain the limitations and error potential associated with nursing staff manually programming smart pumps and manually documenting in the EHR.

SELF ASSESSMENT QUESTION: How does manual documentation within the EHR compare to data generated by smart pumps?

BACKGROUND: Intravenous medications are associated with up to 56% of all medication errors. Technologies such as barcode-assisted medication administration and infusion pumps (i.e., smart pumps) are utilized in most health systems across the United States to minimize the number of errors observed with intravenous medications. Smart pump technology allows for safeguards such as limiting the maximum rate at which a medication can be infused, preventing the delivery of incorrect medication concentrations, and providing detailed information of how much medication a patient has received. At Vanderbilt University Adult Hospital (VUAH), we currently rely on nursing staff to manually program smart pumps based on the order that is entered in the electronic health record (EHR). Previous studies show that this practice increases the workload for nursing staff with many medications taking over 15 keystrokes to program. Manual programming of the smart pump can also lead to transcription errors due to factors such as high workload volumes, high patient acuity and the complexity of the medication being programmed.

METHODOLOGY: This is a retrospective review of patients who received select infusions between September 2020 and December 2020. Inclusion criteria included patients admitted to VUAH and received a heparin, insulin or propofol infusion. Exclusion criteria included if the infusion lasted less than 12 hours. The primary outcome was the variance between nursing documentation and administration data generated from smart pumps. Secondary patient outcomes included incidence of over-sedation, incidence of hypoglycemia and incidence of clinically significant bleeding due to programming errors.

RESULTS: Smart pump changes were documented within 30 minutes for 73.6% of infusions. 38.7% of all infusion had a documentation error and 4.9% had a programming error. 8.9% of the heparin infusion were associated with a major bleed, 18.4% of insulin infusions with hypoglycemia and 10.3% of propofol with over sedation. Heparin and insulin infusions accounted for the majority of documentation within 15 minutes, but also the majority of additional documentation done by nursing staff.

CONCLUSIONS: There was a 40.5% error rate for documentation and smart pump programming even though 73.6% of infusions were documented within 30 minutes. Implementing smart pump interoperability will help reduce the error rate and time spent by nursing staff. programming and documenting infusions.

PRESENTation: https://youtu.be/fCFdItonR_c

O The Effect of Immunotherapy on Brain Metastases in Non-Small Cell Lung Cancer

Presenters: Edward Lee

TITLE: The Effect of Immunotherapy on Brain Metastases in Non-Small Cell Lung Cancer

AUTHORS: Edward Lee, PharmD; Tyler Beardslee, PharmD, BCOP; Christine Davis, PharmD, BCOP; Jennifer Carlisle, MD

SELF ASSESSMENT QUESTION: What were the most common sites of disease progression in patients with recurrent or metastatic NSCLC receiving IO therapy?

Background/Purpose: About 10-40% of patients with non-small cell lung cancer (NSCLC) will develop brain metastases during the course of their disease. Current approaches to management of brain metastases in these patients include whole brain radiation therapy and local surgery. Despite these measures, the expected median survival in these patients ranges from 2.4 – 4.8 months. The addition of immunotherapy to traditional platinum doublet chemotherapy showed significant improvements in both overall survival and progression-free survival in patients with advanced (NSCLC). However, the effect of immunotherapy on the progression of brain metastases in this patient population is unknown. Ongoing trials are being conducted to explore the efficacy of immunotherapy in the setting of brain metastases in patients with NSCLC that suggest possible benefit, but no definitive data are available at this time. This retrospective chart review of patients at the Winship Cancer Institute of Emory University Hospital aims to further explore the effect of immunotherapy on brain metastases in patients with NSCLC.

Methodology: A retrospective chart review including patients at least 18 years of age with recurrent or metastatic NSCLC that received or are currently receiving treatment with at least one of the following modalities were included: (1) platinum doublet chemotherapy, (2) immunotherapy, defined as either a programmed cell death protein -1 (PD-1) or programmed cell death protein ligand-1 (PD-L1) inhibitor. The primary objective of this study is to examine the progression of brain metastases between populations that were treated with immunotherapy versus chemotherapy versus combination immunotherapy and chemotherapy. Secondary objectives include the comparing the progression of brain metastases between patients receiving chemotherapy alone versus immunotherapy alone versus combination chemotherapy and immunotherapy, progression of liver metastases, progression of metastases to other sites of the body (i.e. bone, thoracic lymph nodes), the clinical benefit of treatment (defined as the amount of time a patient remains on treatment prior to disease progression or initiation of a new agent), and immunotherapy-associated adverse effects.

Results: A total of 123 patients were eligible for analysis. 43 patients received immunotherapy alone and 80 patients received combination immunotherapy and chemotherapy. Baseline characteristics were similar between groups. There was no significant difference in the progression of brain metastases between the immunotherapy alone arm and combination immunotherapy-chemotherapy arm (16% vs 11%, $p=0.506$). No differences in the rate of liver metastases (9% vs 6%, $p=0.722$) or metastases to other parts of the body (23% vs 39%, $p=0.053$) were observed. Most patients had a clinical benefit of >12 months. Rates of discontinuation due to adverse drug reactions, the need to start immunosuppressive therapy due to immune-related adverse events, and the need to start thyroid replacement were similar between groups.

Conclusion: Immunotherapy monotherapy results in comparable rates of disease progression compared to combination chemotherapy and immunotherapy.

Presentation Objective: Describe the effect of immunotherapy on the progression of brain metastases in patients with NSCLC.

Self Assessment Question Answer: bones, thoracic lymph nodes, contralateral lung

Presentation Link: <https://youtu.be/IXqMtpovRk>

B Evaluation of Clinical Pharmacist Utilization of Cardioprotective Antidiabetic Agents in Patients with Diabetes

Presenters: Cody Parker

TITLE: Evaluation of Clinical Pharmacist Utilization of Cardioprotective Antidiabetic Agents in Patients with Diabetes

AUTHORS: Cody Parker, Grace Simpson, Joseph Crosby, Jasmyn Ellison, Allison Presnell

OBJECTIVE: Describe the utilization of cardioprotective antidiabetic medications by a clinical pharmacist working in collaboration with a physician in the primary care setting.

SELF ASSESSMENT QUESTION: What is a class of antidiabetic medications that clinical pharmacists utilize for improving cardiovascular outcomes in the primary care setting?

BACKGROUND: Determine the utilization of cardioprotective antidiabetic medications by a clinical pharmacist working in collaboration with a physician in a primary care setting

METHODOLOGY: A computer-generated list identified adult patients with type II diabetes mellitus with office visits from September 2019 to February 2020 at three primary care offices in the St. Joseph's/Candler Health System.

Patients with cardiovascular disease or risk factors were then stratified based on patient encounters with a physician only or collaborative care from a physician and a clinical pharmacist. Data was collected on medication usage and change in hemoglobin A1c during the study period.

RESULTS: A total of 232 patients were identified in the study period. Of the 116 patients evaluated in the physician only group, 29 (25%) received a cardioprotective antidiabetic medication. Of the 116 patients in the physician and clinical pharmacist group, 66 (56.9%) received a cardioprotective antidiabetic medication. In the physician only group, 39 patients (33.6%) had a reduction in A1c versus 62 patients (53.4%) in the physician and clinical pharmacist group. The average A1c percent reduction in the physician and clinical pharmacist group was 1%. There were 49 medication access issues resolved in the physician and clinical pharmacist group.

CONCLUSIONS: Under the collaborative care of a physician and clinical pharmacist, cardioprotective antidiabetic medications were utilized more frequently, there was a greater reduction in A1c, and a clinically relevant number of medication access issues were resolved.

Link to presentation:

https://youtu.be/zlpeUhFA_U0

Presenters: Jacqueline Waller

TITLE: Implementing VIONE into Patient Aligned Care Teams with Clinical Pharmacy Specialists

AUTHORS: Jacqueline Waller, Lauren Rass, Lynsey Neighbors, Molly Howard

OBJECTIVE: Identify the impact of a CPS utilizing VIONE resources to optimize patient care and safety

SELF ASSESSMENT QUESTION: According to the VIONE methodology, every medication should have a specific what?

BACKGROUND: Polypharmacy is defined by The World Health Organization (WHO) as “the administration of many drugs at the same time or the administration of an excessive number of drugs.” Polypharmacy is associated with increased risk of medication-related adverse outcomes. To help decrease polypharmacy and the number of adverse events associated with it, the Veterans Health Administration launched VIONE. VIONE is a medication deprescribing tool, which is designed to guide clinicians in determining if a medication is Vital, Important, Optional, Not indicated, and that Every medication has a specific indication or diagnosis.

METHODOLOGY: A pharmacy resident contacted high risk patients to determine their interest in completing a VIONE visit with a clinical pharmacy specialist (CPS). Patients were identified using the VIONE dashboard, and those who had a care assessment need (CAN) score of at least 90 and were prescribed at least 30 medications were contacted first. During the VIONE visit, the CPS conducted medication reconciliation utilizing the VIONE progress note template. The CPS deprescribed, optimized, or initiated medications as appropriate within their scope of practice.

RESULTS: A total of 20 Veterans were scheduled for a VIONE visit with a PACT CPS. The primary outcome was the average number of pre- and post-VIONE active medications. The average pre-VIONE medication number was 35 (28-53) and the post-VIONE average was 30 (23-48) medications. On average, seven medications were discontinued during the VIONE visit. Throughout the 20 visits, there were 41 total CPS interventions made (13 non-pharmacologic and 28 pharmacologic). 70% (14/20) of the Veterans were scheduled for follow-up visits with the CPS.

CONCLUSIONS: VIONE is an effective method of decreasing unnecessary or inappropriate medications. The VIONE visits resulted in numerous follow-up visits to manage the patients' chronic disease states. VIONE is a resource that can be used to decrease polypharmacy, promote medication safety, and identify high risk patients for pharmacist intervention.

Link to Presentation: [Implementing VIONE into PACT Clinic with CPS within a Veterans Affairs Health Care System - YouTube](#)

Y Identifying barriers to utilization of a medication access program among referred patients surveyed after discharge from an acute care hospital

Presenters: Paige Greene

TITLE: Identifying barriers to utilization of a medication access program among referred patients surveyed after discharge from an acute care hospital

AUTHORS: Paige E. Greene, T. Wells, A. Wright, J. Wood, J. McLellan, E. Hudson, M. Pitt

OBJECTIVE: At the conclusion of this presentation, the participant will be able to identify barriers to utilization of a medication access program among uninsured patients.

SELF ASSESSMENT QUESTION: All of the following are patient-reported barriers to utilization of a medication access program EXCEPT:

BACKGROUND: For uninsured residents of select counties in North Carolina, the Cumberland County Medication Access Program (CCMAP) provides prescriptions at no cost. Uninsured patients hospitalized at Cape Fear Valley Medical Center are referred to CCMAP at discharge by Cape Fear Valley Health System employees, primarily Coordination of Care personnel and Outpatient Pharmacy personnel. The purpose of this study is to describe the most frequently reported utilization barriers among surveyed patients referred to CCMAP following discharge from Cape Fear Valley Medical Center.

METHODOLOGY: This is a single-center, survey-based, descriptive research study. Referring Cape Fear Valley Health System employees collected the Medical Record Number (MRN) of patients referred to CCMAP at discharge between 10/22/2020 and 12/31/2020. These patients were contacted by a research team member via telephone at least 30 days after discharge to voluntarily participate in a survey regarding their ability to receive prescriptions from CCMAP after discharge. Patient-reported utilization barriers and demographics were recorded. A similar survey was voluntarily completed by referring Health System employees. Employee-reported utilization barriers were collected to identify discrepancies in perceived utilization barriers among discharged patients and referring Health System employees.

RESULTS: There were 69 patients referred to CCMAP at discharge by Outpatient Pharmacy personnel. Of these, 17 patients met inclusion criteria and completed the survey. Approximately 35% of patients reported their greatest utilization barrier to be uncertainty about how to apply for CCMAP. Additionally, 25 surveys were completed by referring Outpatient Pharmacy personnel. Of these, 56% of participants reported they believe the greatest utilization barrier to be patient uncertainty about how to apply for CCMAP.

CONCLUSIONS: Uninsured patients discharged from Cape Fear Valley Medical Center could benefit from increased assistance with completing CCMAP applications and enrollment with the program prior to discharge to improve continuity of care.

PRESENTATION LINK: <https://youtu.be/HHLfNwTVLHE>

R Development and Implementation of a Ketamine Protocol for Continuous Sedation in the ICU

Presenters: Chris Nixon

TITLE: Development and Implementation of a Ketamine Protocol for Continuous Sedation in the ICU

AUTHORS: Christopher Nixon, Kenneth Boley, Mickala Thompson

OBJECTIVE: Create a new protocol utilizing ketamine for continuous sedation

SELF ASSESSMENT QUESTION: List 1 potential risk to patient safety when using ketamine for continuous sedation

BACKGROUND: Create a ketamine for continuous sedation protocol for intensive care unit (ICU) use and evaluate its impact based on pre-determined parameters

METHODOLOGY: Protocol design will be based on primary literature available as well as other institution protocols. Information gathered will be compiled and adapted to meet the needs of the Huntsville Hospital Health System. After the protocol is in place, the following parameters will be evaluated for each patient that received our protocol: time of order, duration of infusion, other sedatives at time of order, blood pressure, heart rate, supportive medications given during infusion, intensive care unit length of stay, Richmond Agitation Sedation Scale scores, and vasopressor use.

RESULTS: Six patients have received the new protocol since go-live in January 2021. 100% of patients were appropriately initiated on the protocol and had achieved a goal RASS score at 24 hours. 33% of our patients required less vasopressor use with 67% requiring a higher amount, likely due to increase in illness severity. Two patients required ketamine to be titrated off due to significant elevations in blood pressure. Two patients required supportive medication administration.

CONCLUSIONS: Ketamine for continuous sedation in the ICU is a promising adjunct sedative as demonstrated by these early results. In the future, ketamine's use should be explored in different patient populations and locations within the institution. Ketamine does present with some safety concerns but to date no safety events have caused patient harm.

R Evaluation of Anti-Epileptic Drugs for the Prophylaxis of Early Post-Traumatic Seizures in Critically Ill Pediatric Patients with Traumatic Brain Injury

Presenters: Madyson Allard

TITLE: Evaluation of Anti-Epileptic Drugs for the Prophylaxis of Early Post-Traumatic Seizures in Critically Ill Pediatric Patients with Traumatic Brain Injury

AUTHORS: Madyson Allard, Whitney Moore, Juwon Yim

OBJECTIVE: Identify the role of early post-traumatic seizure (EPTS) prophylaxis following traumatic brain injury (TBI) in pediatric patients.

SELF ASSESSMENT QUESTION: Is EPTS prophylaxis recommended following TBI in pediatric patients?

BACKGROUND: TBI is a leading cause of death and disability in pediatric patients. A complication of TBI is EPTS, defined as seizures that occur within seven days of injury. These provoked seizures can increase the risk of brain damage and result in greater neurologic deficits. Current guidelines recommend seizure prophylaxis in patients with TBI, but do not recommend any specific therapeutic agent(s). This study will explore whether the use of different seizure prophylaxis agents decreases the incidence of EPTS.

METHODOLOGY: This study was a retrospective chart review of 239 patients admitted to a Children's Healthcare of Atlanta Pediatric Intensive Care Unit from January 2013 to December 2019 for a moderate to severe TBI (Glasgow Coma Scale \leq 12). The primary outcome was the incidence of EPTS in patients with and without seizure prophylaxis.

RESULTS: Of the 239 patients included in the study, 96 received seizure prophylaxis. Eleven of these patients experienced EPTS (11.5%), compared to 28/143 (19.6%) that did not receive prophylaxis resulting in an odds ratio of 0.47. The most common anti-epileptic used for prophylaxis was levetiracetam (n=76) followed by fosphenytoin (n= 19). Seizure incidence was comparable with 7 patients having reported a seizure in the levetiracetam group (9.2%), compared to 2 patients (10.5%) in the fosphenytoin group.

CONCLUSIONS: Seizure prophylaxis decreases the risk of EPTS, when compared to patients that did not receive prophylaxis. There was no statistically significant difference in choice of prophylactic agent.

LINK: <https://pro.panopto.com/Panopto/Pages/Viewer.aspx?tid=e943f2ce-9274-4008-a02f-ad0d0188f5bb>

Presenters: Taylor Servais

TITLE: Evaluation of the Management of Alcohol-Associated Vitamin and Electrolyte Deficiencies in the Emergency Department

AUTHORS: Taylor Kaye Servais, Hunter Ingoe, Roger Reeder, Alexas Polk

OBJECTIVE: At the conclusion of my presentation, the participant will be able to explain the potential decrease in time to thiamine administration associated with individualized therapy compared to banana bags.

SELF ASSESSMENT QUESTION: Is the administration of individualized thiamine versus banana bags associated with a shortened time to administration?

BACKGROUND: Recent literature evaluated the justification for intravenous (IV) administration of compounded thiamine, folic acid, multi-vitamin, and fluids (banana bags) for patients with alcohol use disorder. Evidence suggests that not all patients warrant therapy with banana bags and instead, components can be dosed individually based on symptom severity determined by the Clinical Institute Withdrawal Assessment of Alcohol (CIWA) score. The objective of this study is to evaluate the impact of banana bags versus individual thiamine therapy for alcohol associated deficiency replacement on the time to thiamine administration and cost savings.

METHODOLOGY: This two-phase, retrospective, observational review included patients > 18 years old who presented to the emergency department with an order for thiamine as part of alcohol-associated deficiency replacement. The first phase of the study assessed IV thiamine orders for deficiency replacement based on current protocols, followed by the evaluation of individual thiamine therapy based on symptom severity in phase two. The electronic medical record system was used to complete the retrospective chart review of all eligible patients. All data was recorded without patient identifiers and maintained confidentially. Documentation in the electronic medical record and the time to thiamine administration in part one versus part two of the study was used to determine if individualized thiamine therapy led to shortened time to administration and cost savings.

RESULTS: A total of 126 patients were evaluated in this study. Replacement via administration of individual components with thiamine dosing and route of administration determined by the patient's symptom severity led to a significant decrease in time to thiamine administration ($p=0.0001$) and was associated with a medication cost savings of approximately \$1,700 over a 3 month period.

CONCLUSIONS: In alcohol use disorder patients, vitamin and electrolyte replacement via administration of individual components was associated with decreased time to thiamine administration and reduced medication cost savings compared to banana bags therapy.

PRESENTATION LINK: <https://youtu.be/-pXCDRhPXXk>

Presenters: Cara Nys

TITLE: Antimicrobial Stewardship for Urinary Tract Infection in Three Emergency Departments

AUTHORS: Nys C, Funaro J, Fischer K, Shoff C, Shroba J, Toler R, Liu B, Lee H, Moehring R, Wrenn R

OBJECTIVE: Describe the methodology and impact of a multi-faceted AS intervention on the rate of guideline prescribing for UTIs in the ED.

BACKGROUND: Broad-spectrum antibiotics are often prescribed to patients presenting to the emergency department (ED) with urinary tract infection and pyelonephritis (UTI). UTIs are often misdiagnosed and lead to unnecessary antibiotic use. Thus, there is a critical need to evaluate antimicrobial stewardship (AS) tactics targeting UTI prescribing in this setting.

METHODOLOGY: We conducted a prospective evaluation of a two-phase AS intervention outlining appropriate UTI diagnosis and management across three EDs. The phase 1 intervention included introduction of a urine-specific antibiogram, education, and department-specific feedback on UTI diagnosis and antibiotic prescribing. Phase 2 included re-education, as well as department- and provider-specific feedback. Eligible patients included adults diagnosed with UTI and prescribed an antibiotic in the ED. Patients were excluded if they were admitted. The primary outcome was the rate of guideline-directed antibiotic use, which was assessed using an interrupted time series analysis with 2-week intervals. The study included a pre-intervention period (11/2018 to 11/2019), phase 1 (11/2019-8/2020), and phase 2 (9/2020-2/2021).

RESULTS: Overall, 10,426 distinct encounters were included. There was a 15% initial increase in guideline-directed antibiotics prescribing in Phase 1 compared to the pre-intervention period ($p=0.02$). With every two-week period during phase 2, there was a 3% increase of guideline-directed prescriptions ($p=0.001$).

CONCLUSIONS: Our multifaceted stewardship intervention involving treatment algorithms, education, and provider-specific feedback was effective in increasing guideline-directed antibiotic choices in the ED.

SELF ASSESSMENT QUESTION: What is an example of an antimicrobial stewardship intervention?

Link to presentation: https://youtu.be/m6ln400_xOU

Presenters: Sarah Adams

TITLE: Optimizing Pre-Operative Antibiotic Use Through Improved Penicillin Allergy Documentation

AUTHORS: Sarah Adams, Caroline Gresham, Andy Ariail, Karen Curzio Rodeghiero

OBJECTIVE: Describe the impact of a penicillin allergy questionnaire on pre-operative antibiotic use.

SELF ASSESSMENT QUESTION: Does the improvement of penicillin allergy documentation in the electronic health record increase the use of pre-operative cefazolin in penicillin allergic patients?

BACKGROUND: Penicillin allergy documentation is often incomplete in the electronic health record (EHR). Cefazolin, a first-generation cephalosporin, is the most common surgical prophylaxis antibiotic recommended in national and institutional guidelines in orthopedic, cardiovascular, neurologic and hernia surgeries. Patients with a reported penicillin allergy often receive sub-optimal pre-operative antibiotics, such as vancomycin or clindamycin, due to concern for penicillin allergy cross-reactivity with cefazolin. The purpose of this study is to improve the documentation of penicillin allergies in the EHR. The investigators hypothesize that more detailed documentation of penicillin allergies by pre-admission staff, will increase the use of pre-operative cefazolin.

METHODOLOGY: This was a single-center, interventional study comparing pre-operative antibiotic selection in patients with a self-reported penicillin allergy admitted for an elective orthopedic, cardiovascular, neurologic or hernia surgery before and after implementation of a penicillin allergy questionnaire. Nursing staff followed a penicillin allergy questionnaire and documented the allergy in the EHR. The primary outcome was the number of patients that received cefazolin for surgical prophylaxis before and after intervention. Secondary outcomes were the number of patients with surgical site infections occurring within 30 days of surgery, number of patients with detailed allergy documentation, and number of patients that received the full antibiotic dose prior to first surgical incision.

RESULTS: 100 patients were included in the pre-intervention group, while 85 patients were included in the post-intervention group. Less patients in the pre-intervention group received cefazolin pre-operatively compared to the post-intervention group (13 [13%] vs. 35 [41.2%], $p < 0.001$). There was no difference in the incidence of surgical site infection at 30 days after surgery (3 [3%] vs. 1 [1.2%], $p = 0.63$). Two patients had detailed allergy documentation in the pre-intervention group, while 43 patients had detailed documentation in the post-intervention group (2% vs. 50.6%, $p < 0.001$). 25 patients in the pre-intervention group received the full pre-operative antibiotic dose or infusion prior to first incision compared to 41 patients in the post-intervention group (25% vs. 48.2%, $p = 0.001$).

CONCLUSIONS: Use of pre-operative cefazolin increased in patients with a reported penicillin allergy after implementation of a penicillin allergy questionnaire. More patients had detailed allergy documentation in the post-intervention group with respect to reaction, when the reaction occurred, and other tolerated beta-lactam antibiotics. There was an increase in the number of patients who received the full pre-operative antibiotic dose prior to first incision, but there was no statistical difference in the incidence of surgical site infections at day 30 post-operation.

Presenters: Kailey Hoots

TITLE: Evaluation of insulin use for treatment of hyperkalemia

AUTHORS: Kailey Hoots, Lauren Chambers, Joseph Davis

OBJECTIVE: To assess the risk of hypoglycemia in VMC patients who are treated with full-dose (10 units) versus reduced-dose (less than 10 units) insulin in the setting of hyperkalemia. Patients with CKD will be stratified to identify hypoglycemia differences between the two groups.

SELF ASSESSMENT QUESTION: Should pharmacists promote reduced-dose insulin for potassium shifting in patients with renal dysfunction?

BACKGROUND: The recommended dose of regular insulin for potassium shifting is 10 units intravenously given in combination with 25 grams of intravenous dextrose to prevent hypoglycemia. Since insulin is removed from the body via glomerular filtration and peritubular diffusion, insulin clearance diminishes in chronic kidney disease (CKD). This increases the risk of hypoglycemia due to extended insulin half-life. The purpose of this study was to compare standard dose insulin (10 units) to low dose insulin (less than 10 units) regarding hypoglycemia and efficacy in reducing potassium levels. In addition, the study will identify and compare hypoglycemia occurrence rates when insulin is used for potassium shifting in the general population versus those with CKD or acute kidney injury (AKI).

METHODOLOGY: This single-center retrospective review included adult patients with hyperkalemia (potassium >5 mEq/L) who received insulin for potassium shifting between August 1st, 2019 and August 31st, 2020. Patients were excluded if they received renal replacement therapy prior to subsequent potassium measurement. The primary endpoint was the rate of hypoglycemia (blood glucose < 70 mg/dL) in patients treated with full-dose (10 units) versus reduced-dose (<10 units) insulin for hyperkalemia. Secondary endpoints included the average dose of insulin, extent of potassium lowering in standard-dose versus reduced dose insulin groups and hospital length of stay. The primary and secondary endpoints will be analyzed by comparing mean values, chi-squared and two-sample t-tests. For all comparisons, statistical significance will be defined as $p < 0.05$.

Link to presentation: <https://youtu.be/nkQXZCaUoSA>

Presenters: Aqsa Adnan

TITLE: Evaluation on the Efficacy of Testosterone Suppression with Eligard® versus Lupron®

AUTHORS: Aqsa Adnan, Aseala Abousaud, Sarah Caulfield, Bradley Carthon, Jeffrey Switchenko

OBJECTIVE: The primary objective of this research is to evaluate the median time (months) patients are not castrate while on subcutaneous versus intramuscular leuprolide in patients with known prostate cancer. Secondary outcomes are to explore differences in progression free survival and overall survival. This data will be used to identify potential factors that contribute to patients not responding to Eligard® therapy.

SELF ASSESSMENT QUESTION: How does the efficacy of utilizing Eligard versus Lupron for Prostate Cancer compare?

BACKGROUND: Prostate cancer is perpetuated by androgens that are essential for prostate cancer cells proliferation and growth. Androgen deprivation therapy (ADT) lowers androgen secretion by the testes through medical castration or by surgical castration. For this reason, these synthetic analogues of LHRH have become the mainstay of treatment to achieve androgen suppression. Leuprolide acetate, a LHRH analogue, has an increase duration of action and affinity at the pituitary receptor with known potent inhibition of androgen production. Patients administered leuprolide acetate will have an initial rise in the luteinizing hormone (LH) and follicle stimulating hormone (FSH), which thereby leads to a transient increase in gonadal steroids: testosterone, dihydrotestosterone in males and estrone and estradiol in premenopausal females. However, with continuous administration of ADT, these elevated levels will begin to decline and result in lower FSH and LH levels and serum testosterone below castrate threshold. Conclusion: Patient were not found to have a difference in time not castrate but were found to have statistical significance in the progression free survival.

Presenters: Keith Keddington

TITLE: Impact of an Inpatient Pharmacy Transplant Medication Consult Service on Non-Transplant Services

AUTHORS: Keith Keddington; Mackenzie Magid; Katherine Mieure; Meredith Hollinger; Marc Reichert

OBJECTIVE: Describe a novel service of transplant medication management to decrease immunosuppressant related medication errors in the inpatient setting.

SELF ASSESSMENT QUESTION: What resources are available to minimize the risk of inpatient immunosuppressant drug-drug interactions?

BACKGROUND: Solid organ transplant patient care is complicated by high-risk medication regimens with the potential for adverse effects, often secondary to immunosuppressant drug-drug interactions (I-DDI). Transplant pharmacists serve as immunosuppression experts on dedicated transplant teams, but their expertise is not readily available to clinicians of other specialties who may encounter patients with a history of transplant. When transplant patients are admitted to non-transplant inpatient services, the potential for I-DDIs may increase due to lack of medication familiarity. Inpatient consultation services are common for specialty care, but a transplant pharmacy specific inpatient consultation service is not described in literature. The purpose of this study is to evaluate if an inpatient transplant pharmacist consultation service can reduce I-DDIs in patients with a history of solid organ transplant admitted to a non-transplant service.

METHODOLOGY: The primary objective is to compare the number of I-DDIs before and after the implementation of a transplant pharmacy consult service. Secondary objectives include I-DDIs severity, time unresolved, immunosuppressive serum drug levels, and medication error safety event reports. Eligible patients are admitted to a non-transplant service, have a history of solid organ transplant, and orders for systemic immunosuppressant medications, namely tacrolimus, mycophenolate, azathioprine, cyclosporine, sirolimus, everolimus, and belatacept. In the consultation group, transplant pharmacists review qualifying patients and recommend medication adjustments when applicable. A historical comparator of pre-consultation encounters are matched 1:1 on relevant characteristics. Charts are reviewed by study investigators for primary and secondary objectives.

RESULTS: In Progress

CONCLUSIONS: This explores the impact of a pharmacist-driven inpatient transplant consultation service. Results from this study have the potential to provide data supporting the implementation of a transplant pharmacist consultation in the inpatient setting to reduce medication errors.

Presenters: Shelby Brooks

TITLE: Effect of a clinical decision support tool on outpatient antibiotic prescribing for acute otitis media infections – Phase I

AUTHORS: Shelby Brooks, PharmD, BCPS; Sarah Eudaley, PharmD, BCPS; Rebecca Higdon, MPH; Julie Jeter, MD; Shaunta' Chamberlin, PharmD, BCPS, FCCP

OBJECTIVE: Evaluate prescribing patterns for acute otitis media infections in a family medicine resident clinic prior to implementation of a clinical decision support tool.

SELF ASSESSMENT QUESTION: What areas of prescribing (medications, duration, doses) can be improved by implementing a CDS tool?

BACKGROUND: A significant portion of inappropriate antibiotic prescribing in the outpatient setting occurs in the pediatric population, with 1 in 5 pediatric ambulatory visits resulting in antibiotic prescriptions. Implementation of clinical decision support tools has been endorsed by the Centers for Disease Control Core Elements of Outpatient Antimicrobial Stewardship to help combat inappropriate prescribing. The purpose of this study is to evaluate antibiotic prescribing for acute otitis media before and after implementation of a clinical decision support tool.

METHODOLOGY: Phase I will be a cross-sectional study of children aged 6 months to 18 years old diagnosed with acute otitis media (defined by ICD-10 codes) at an outpatient family medicine resident clinic between January 1 – October 31, 2020. Pertinent exclusion criteria are patients with a competing bacterial diagnosis that warrants antibiotic therapy (urinary tract infections, strep throat, pneumonia), receipt of an antibiotic within 30 days prior to the visit, history of tympanostomy tubes, documented anaphylactic medication allergies prior to office visit, and recurrent otitis media infections. The primary endpoint for phase I will be prescribing trends of antimicrobial therapy for acute otitis media. Secondary endpoints will include proportion of patients receiving guideline-directed antimicrobial therapy and the proportion of patients receiving guideline-directed duration of therapy. Descriptive statistics will be utilized to describe the study population, as well as the current prescribing rates of different antibiotics for acute otitis media.

RESULTS: 64 patients fit inclusion criteria for the pre-implementation phase of the study. Approximately 50% of the population was white, while approximately 30% of the population was Hispanic/Latino. The remaining 20% included Asians, African Americans, Native Hawaiian or other. The average age of patients was 3.59 ± 4.30 months and 30% of the patients had seasonal allergies documented prior to their office visit for otitis media. None of the patients included has antibiotic allergies documented prior to their otitis media visit. In children aged 24 months and older with bilateral acute otitis media, none of them presented with otorrhea, but watchful waiting was not utilized in any of these patients even though it is guideline recommended to do so. In children aged 6-24 months with bilateral acute otitis media, none of them presented with otorrhea, but due to age and bilateral infection, initial antibiotics are warranted, but watchful waiting was used in 1 patient. In children with unilateral and severe symptoms, watchful waiting was utilized in 2 patients, instead of initial antibiotics. Appropriate first-line antibiotics were used in 90-100% of the population, while appropriate dosing was only utilized in 60-80% of the population.

CONCLUSIONS: Implementation of a clinical decision support tool in an outpatient family medicine resident will assist with appropriate utilization of watchful waiting, antibiotic dosing and treatment duration of acute otitis media.

B Evaluating student pharmacist perception and effectiveness of learning through face-to-face, online, and hybrid instructional methods

Presenters: Hannah Duncan

TITLE: Evaluating student pharmacist perception and effectiveness of learning through face-to-face, online, and hybrid instructional methods

AUTHORS: Hannah Duncan, Jenni Beall, B. DeeAnn Dugan, Roger Lander, Michael Kendrach

OBJECTIVE: Compare student pharmacist-reported perceptions of face-to-face, online, and hybrid instructional methods.

SELF ASSESSMENT QUESTION: What preference do student-pharmacists have regarding instructional method used in the classroom (face-to-face, online, and hybrid)?

BACKGROUND: A key element of pharmacy curricular accreditation standards includes utilization of current technologies for the improvement of curriculum. In the midst of the COVID-19 pandemic, many discussions regarding implementation of hybrid and/or online instructional methods are being accelerated. The purpose of this project is to assess student pharmacist perception and effectiveness of face-to face, online, and hybrid instructional methods.

METHODOLOGY: An email with a voluntary, anonymous 22-question survey was sent to the second-year and third-year student pharmacists in late November/early December 2020. The survey remained open for responses for 4-weeks, with a reminder email sent on day 21. Only surveys completed in full will be eligible for inclusion. Assessment of student grades will be collected for the class at the conclusion of the fall 2020 semester; individual grades will not be assessed. Descriptive statistics were used to explain preliminary collected data.

RESULTS: Preliminary results of 53 second-year and 56 third-year student pharmacists were assessed. Sixty-nine percent of students responded that instructional method made a difference in their performance (grade in class), with sixty-six percent of students selecting that they performed best in a face-to-face instructional setting. Baseline GPAs to-be compared to final GPAs for fall 2020 semester.

CONCLUSIONS: Preliminary survey results reveal that majority of student pharmacists prefer face-to-face instructional methods compared to either hybrid instruction or online-only instruction. While online learning provides flexible learning time and more convenience, students often stated they lacked interest and found it more difficult to learn in the online learning setting.

C Evaluation of guideline-directed utilization of intravenous iron in patients with heart failure with reduced ejection fraction in an inpatient setting

Presenters: Carrie Ellison

TITLE: Evaluation of guideline-directed utilization of intravenous iron in patients with heart failure with reduced ejection fraction in an inpatient setting

AUTHORS: Carrie Ellison; Sarah Blandy; Amanda Moyer

OBJECTIVE: To describe the utilization of intravenous iron in patients with heart failure with reduced ejection fraction at an academic medical center.

BACKGROUND: Intravenous (IV) iron repletion for patients with heart failure is currently recommended in guidelines due to noted benefits in improved quality of life, increased exercise tolerance, and reduction in patient-reported symptoms. While these recommendations were mostly based on evidence from two randomized controlled trials in the ambulatory setting, a recent trial in hospitalized patients with acute heart failure confirmed a reduction in heart failure-related hospitalizations. The purpose of this study was to evaluate intravenous iron utilization in patients with heart failure with reduced ejection fraction (HFrEF) in the inpatient, cardiac hospital setting.

METHODOLOGY: This single-center, observational, retrospective chart review was conducted in adult patients with HFrEF who received intravenous iron during hospitalization. Patients who received blood transfusions were excluded. Charts were reviewed for demographic information, ejection fraction, iron studies, and iron repletion characteristics. The primary objective of the study included the evaluation adherence to guideline directed criteria for iron deficiency defined as ferritin <100 mg/L or ferritin 100 – 300mg/L + Tsat <20%. Secondary objectives include evaluation of intravenous iron replacement completeness stratified by study site iron products and discharge recommendations for completion of IV iron if needed.

RESULTS: During the review period, 72% (n=36) of HFrEF patients who received IV iron were concordant with guideline recommendations. During hospitalization patients had approximately 67% with iron sucrose having greater repletion at ~74% during hospitalization. There was low incidence of HF readmission at thirty days with four total.

CONCLUSION: Majority of patients were repleted appropriately per guideline recommendations. While patients had greater repletion with iron sucrose, initiating IV iron earlier in the hospitalization could mitigate this difference given average length of stay to first dose was four days.

SELF ASSESSMENT QUESTION: What is/are the benefit(s) of intravenous iron in patients who have heart failure with reduced ejection fraction?

Presentation link: <https://youtu.be/IUD4AnU-v9k>

Y Comparison of Patient Adherence with Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers Pre- versus Post-COVID-19 Warnings

Presenters: Cara Beth Brann

TITLE: Comparison of Patient Adherence with Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers Pre- versus Post-COVID-19 Warnings

AUTHORS: Cara Beth Brann, Jonathan Harward, Charles Herring, Katie Trotta

OBJECTIVE: To assess changes in medication adherence to angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs), and calcium channel blockers (CCBs) before and after COVID-19 harm-related warnings

SELF ASSESSMENT QUESTION: Should community pharmacies expect changes in medication adherence, following harm-related warnings during a pandemic?

BACKGROUND: Determine the effect of online warnings of COVID-19 infection, related to ACEI/ARB therapy, on medication adherence

METHODOLOGY: Eligible patients were those at least 18 years of age who filled a prescription at an independent pharmacy in Raleigh, NC for an ACEI, ARB, and/or CCB between September 11, 2019 to March 10, 2020 or March 11, 2020 to September 11, 2020. Adult patients at long-term care facilities serviced by the pharmacy were excluded. Medication adherence was measured using medication possession ratio (MPR), as determined by the pharmacy's dispensing software, PioneerRX, pre- and post-COVID-19 harm-related warnings. In order to detect a 3% difference in MPR for ACEI/ARB therapy with 83% power, 3,400 prescriptions were needed. In order to detect a 5% difference with 80% power, 1,140 prescriptions for CCBs were needed.

RESULTS: A total of 1,294 prescriptions for ACEI/ARB therapy were dispensed pre-warning and 1,469 post-warning. The average MPR for ACEI/ARB pre-warning was 0.8974 and 0.9020 post-warning (95% CI, -0.0187 to 0.0094, p-value 0.5223). As a comparator, the average MPR for CCB pre-warning was 0.9221 and 0.9106 post-warning (95% CI, -0.0093 to 0.0324, p-value 0.2789).

CONCLUSIONS: In this cohort of patients at Josefs Pharmacy in Raleigh, NC, there was no difference in medication adherence for ACEI/ARB therapy pre- versus post-COVID-19 warnings. Sample size was insufficient to reach power for either group.

Presentation Access: <https://youtu.be/nES1mlsFM3U>

R Effect of Adjunct Enteral Opioids on Pain Scores in Mechanically Ventilated Patients with COVID-19

Presenters: Joanna He

TITLE: Effect of Adjunct Enteral Opioids on Pain Scores in Mechanically Ventilated Patients with COVID-19

AUTHORS: Joanna He, Joeanna Chastain

OBJECTIVE: List patient-specific reasons for IV analgesic and sedative shortages during the COVID-19 pandemic.

SELF ASSESSMENT QUESTION: Which of the following is a reason for increased IV analgesic and sedative use due to the COVID-19 pandemic?

BACKGROUND: Enteral opioids may be an alternative strategy for pain management during periods of IV fentanyl shortage due to COVID-19. This study aimed to determine the effect of adjunct enteral opioids on pain scores in mechanically ventilated COVID-19 patients receiving continuous IV fentanyl.

METHODOLOGY: Mechanically ventilated COVID-19 patients hospitalized from February through November 2020 who received adjunct enteral opioids while on continuous IV fentanyl were included in this study. The primary endpoint compared the percentage of Critical Care Pain Observational Tool (CPOT) scores at goal before and after the addition of enteral opioids. Secondary endpoints included the percentage of Richmond Agitation Sedation Scale (RASS) scores within goal as well as the analgesics and sedatives used and their total standardized equivalent doses.

RESULTS: Eighteen patients were included in this study. There were no differences in the median percentages of CPOT scores at goal before (100%, IQR 93-100) and after (100%, IQR 100-100) the addition of enteral opioids ($p=0.193$) or in the median percentages of RASS scores at goal before (100%, IQR 100-100) and after (100%, IQR 91.5-100) the addition of enteral opioids ($p=0.424$). The median daily morphine milligram equivalents of opioids decreased significantly from 714 mg (IQR 555-917) to 540 mg (IQR 298-937) after enteral opioids were added ($p=0.048$), while the median daily benzodiazepine dose increased from 0.3 midazolam equivalents/kg/day (IQR 0-0.9) to 0.4 midazolam equivalents/kg/day (IQR 0-1.2) after the addition of enteral opioids ($p=0.052$).

CONCLUSIONS: The addition of adjunct enteral opioids to continuous IV fentanyl in mechanically ventilated COVID-19 patients may lower the requirements for IV fentanyl while providing similar pain control.

Presenters: Sarah Kemerer

TITLE: Hypertonic saline sodium goals for use in cerebral edema and incidence of acute kidney injury

AUTHORS: Sarah Kemerer, Eric Shaw, Audrey Johnson

OBJECTIVE: Determine if certain sodium goals are associated with greater risk of AKI when using HTS infusions.

SELF ASSESSMENT QUESTION: Are certain sodium goals associated with greater risk of AKI?

BACKGROUND: Continuous hypertonic saline infusions are a common treatment used to reduce cerebral edema and elevated intracranial pressures. There is currently a lack of literature clearly defining sodium goals that should be targeted for efficacy and safety. Severe hyponatremia is a risk factor for acute kidney injury (AKI). This study aims to determine the safety of commonly targeted sodium goals in regards to AKI.

METHODOLOGY: This was a single-centered, retrospective, chart review approved by the Institutional Review Board. Adult patients who received hypertonic saline (HTS) infusions for at least 48 hours with serum sodium goals of 145-150, 150-155, or 155-160 mEq/L were included. Charts were reviewed from August 1st 2015, through November 30th, 2020. Patients who were pregnant, incarcerated, or with existing renal dysfunction prior to the HTS infusion were excluded. The primary outcome was incidence of AKI while hyponatremic. Secondary outcomes included hospital and intensive care unit (ICU) length of stay and mortality, hyperchloremia, renal replacement therapy, renal recovery, and duration of AKI.

RESULTS: A total of 112 patients met inclusion criteria. There were 11 patients in the 145-150 group, 72 in the 150-155 group, and 29 in the 155-160 group. The incidence of AKI was 0%, 18.1%, and 6.9% in each group respectively, which was not statistically significant (p-value: 0.128). All secondary outcomes were not statistically significant.

CONCLUSIONS: There is no significant difference in risk of AKI with different sodium goals when using HTS infusions for cerebral edema. Further studies are needed to determine if different sodium goals are associated with improved outcomes

[Link to video](#)

Presenters: My An Pham

TITLE: Evaluation of vancomycin trough-guided dosing and implementation of a new vancomycin AUC-guided dosing at a large community hospital

AUTHORS: My An Pham

OBJECTIVE: To evaluate the efficacy and safety of vancomycin trough-guided dosing and to assist in implementing the new vancomycin AUC-guided dosing at a large community hospital

SELF ASSESSMENT QUESTION: What is the incidence of acute kidney injury in patients receiving vancomycin using trough-guided dosing at our institution?

BACKGROUND: The "Therapeutic monitoring of vancomycin for serious methicillin-resistant staphylococcus aureus infections" consensus guidelines released in 2020 recommend vancomycin area under the curve (AUC)-guided dosing rather than trough-guided dosing to achieve clinical efficacy while improving patient safety. This study is conducted to evaluate the efficacy and safety of vancomycin trough-guided dosing and to assist in implementation of the new vancomycin AUC-guided dosing guidelines. The results of this study will be used next year to compare the efficacy and safety of vancomycin AUC-guided dosing.

METHODOLOGY: A retrospective chart review will be conducted on patients who received trough-guided dosing from January 2020 to March 2020. Data points will be collected to compare and evaluate the efficacy and safety of the vancomycin trough-guided dosing. The primary efficacy endpoints are the time to reach therapeutic target level, duration of vancomycin therapy, and improvement of clinical status. The primary safety endpoints are the incidence of acute kidney injury defined by KDIGO criteria. The collected data will be analyzed using descriptive statistics. This study has been approved by the institutional review board.

RESULTS: As the result of this study, percentage of patients that achieved clinical improvement was about 23% for temperature improvement and about 19.9% for improvement of white blood counts. Approximately 11.1% of patients experienced acute kidney injury while receiving vancomycin and 6.9% of patients had acute kidney injury that resulted in discontinuation of therapy.

CONCLUSIONS: After implementation of vancomycin AUC-guided dosing, future studies are needed to compare the efficacy and safety between the vancomycin AUC-guided dosing and trough-guided dosing.

Presenters: Michelle Rosado

TITLE: Impact of computerized decision support on days of antimicrobial therapy

AUTHORS: Michelle Rosado, Montgomery Green, Jonathon Pouliot

OBJECTIVE: Evaluate the impact of guideline-directed CDS on days of antimicrobial therapy based on indication

SELF ASSESSMENT QUESTION: Q: What is a tool that antimicrobial stewardship programs can utilize to improve antibiotic prescribing?

BACKGROUND: The Infectious Disease Society of America recommends integrating computerized decision support (CDS) into the Electronic Health Record as a part of antimicrobial stewardship programs. With the continual advances in technology, there is a need for more studies to address the benefit of CDS on antimicrobial prescribing. The purpose of this study is to compare the percentage of compliance with guideline recommended duration of therapy before and after implementing guideline directed indication and duration CDS during order entry.

METHODS: This study is a single-center, retrospective cohort. Data was analyzed from patients receiving selected antimicrobials before and after implementation of guideline directed CDS. The pre-implementation group includes patients from June 2019 to January 2020. The post-implementation group includes patients from February 2020 to December 2020. The primary endpoint of this study is percentage of compliance with guideline recommended duration of therapy by indication for selected antimicrobials. Secondary endpoints include hospital length of stay, rates of *Clostridioides difficile* infections, rates of antibiotic adverse events, and charting discrepancies.

RESULTS: A total of 3,362 patients met criteria for inclusion in the pre-implementation group and 3,421 patients in the post-implementation group. Patients in each group were assigned a randomly generated number and the first 200 were included in the study. The primary endpoint occurred in 30.5% (n=61) patients in the pre-implementation group and in 43.5% (n=87) patients in the post-implementation group (P=0.0071). There were no statistically significant differences in the secondary endpoints.

CONCLUSION: In this single-center, retrospective cohort the percentage compliance with guideline recommended duration of therapy was significantly higher after implementing computerized decision support for antimicrobial prescribing.

Presenters: Ly Huynh

TITLE: ENOXAPARIN DOSING IN HOSPITALIZED PATIENTS WITH COVID-19

AUTHORS: Ly Huynh, *PharmD*; Khushbu Patel, *PharmD, BCPS*

OBJECTIVE: To evaluate anti-Xa levels in hospitalized patients with COVID-19 who received level 2 or level 3 enoxaparin.

SELF ASSESSMENT QUESTION: What risk level had a higher percentage of supra-therapeutic anti-Xa level?

BACKGROUND: A high incidence of thrombosis has been reported in hospitalized patients with COVID-19. In response, many hospitals choose to do an intermediate or therapeutic anticoagulation. At our institution, the anticoagulation guideline for COVID-19 patients is stratified by three hypercoagulable stages based on D-Dimer and clinical status, level 1: prophylactic dosing with enoxaparin 0.5 mg/kg/day, level 2: intermediate dosing with enoxaparin 1 mg/kg/day, and level 3: therapeutic dosing with enoxaparin 1 mg/kg every 12 hours.

METHODOLOGY: This study was a single-center retrospective chart review of data collected from February to December 2020. Participants were adults who tested positive for COVID-19, received enoxaparin level 2 or level 3, and had anti-Xa levels collected at steady state. The primary outcome was the number of therapeutic anti-Xa for each anticoagulation level. Secondary outcomes were major bleeding, thrombosis, and readmission rate at 30 days due to bleeding or thrombosis.

RESULTS: There were 67% of therapeutic anti-Xa in level 2; 42% of therapeutic anti-Xa in level 3, non-renal dosing; and 44% of therapeutic anti-Xa in level 3, renal dosing. There were two major bleeding events in level 3 compared to one event in level 2. Three incidences of thrombosis were observed in both groups, and two patients were readmitted after thirty days due to pulmonary embolism in level 2.

CONCLUSIONS: A higher percentage of supra-therapeutic anti-Xa levels was observed in level 3 compared to level 2. Level 3 was observed to have a higher incidence of bleeding but a lower incidence of thrombosis at thirty days after hospital discharge.

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T Impact of outpatient transitions of care pharmacy program on interventions for discharged patients in a community hospital

Room A

Presenters: Tiffany Kahl

TITLE: Impact of outpatient transitions of care pharmacy program on interventions for discharged patients in a community hospital

AUTHORS: Tiffany Kahl, A. Wright, D. Benz, E. Hudson, H. McLeod, T. Wells, E. Ghassemi

OBJECTIVE: At the conclusion of the presentation, the participant will be able to describe the interventions made by TOC pharmacists involved within the discharge process.

SELF ASSESSMENT QUESTION: Which of the following reasons would it be beneficial for employing TOC pharmacist(s) to impact the discharge process? (select all that apply)

BACKGROUND: In August 2020, Cape Fear Valley Medical Center (CFVMC) implemented a transitions of care (TOC) pharmacist position in order to facilitate successful patient transitions from inpatient to outpatient care. The purpose of this project was to describe the clinical impact of the discharge process and the potential need for additional TOC pharmacists in this role.

METHODOLOGY: This was a single-centered retrospective chart review including patients discharged from CFVMC through the discharge lounge between 09/01/2020 and 12/1/2020. The primary objective was describing intervention types made by the TOC pharmacy staff on discharge prescriptions. Secondary objectives were to determine the number of patients requiring interventions, acceptance rate of interventions requiring provider approval, and time spent on interventions.

RESULTS: There were 6,185 patients discharged through the discharge lounge between 09/01/2020 and 12/1/2020. 563 discharge medication interventions were completed by the TOC pharmacy staff on 440 unique patients. The most frequent intervention types were preventing medication error (38.1%), addressing socioeconomic barriers (21.8%), and providing medication optimization (19.3%). It took pharmacy staff less than 10 minutes to complete 77.7% of interventions and more than 10 minutes to complete the remaining 22.3%. Eighty-six percent of interventions requiring provider approval were accepted.

CONCLUSIONS: The implementation of a TOC process has resulted in various types of interventions which help to facilitate patient transition from inpatient to outpatient care. Future studies could be designed to assess patient outcomes associated with the implementation of TOC pharmacist(s).

Presentation link: <https://youtu.be/0fLr1ZPNOps>

1 Kidney Transplant Outcomes Stratified by Race with a Calcineurin and Steroid Free Regimen

Room F

Presenters: Riley Scalzo

TITLE: Kidney Transplant Outcomes Stratified by Race with a Calcineurin and Steroid Free Regimen

AUTHORS: R. Scalzo, M. Harris, J. Morris & J. Byrns

OBJECTIVE: Describe the renal outcomes at 1 year, stratified by race, associated with belatacept and sirolimus after alemtuzumab induction.

SELF ASSESSMENT QUESTION: How do renal outcomes at 1 year differ between African American and non-African American kidney transplant recipients receiving belatacept and sirolimus after alemtuzumab induction?

BACKGROUND: This study aimed to describe the outcomes, stratified by race, associated with the maintenance regimen of belatacept and sirolimus after alemtuzumab induction in kidney transplant recipients.

METHODOLOGY: This was a retrospective, single-center study analyzing the outcomes of kidney transplant recipients who received belatacept-sirolimus immunosuppression after alemtuzumab induction. To be included, patients must have received a kidney-only transplant between 1/1/2016 and 8/31/2019, be > 18 years old, and EBV seropositive. The primary outcome was renal function (GFR by MDRD or CKD-EPI) at 1 year. Secondary outcomes included incidence of biopsy-proven rejection (BPAR), patient/graft survival, incidence of infection, and medication tolerability.

RESULTS: Fifteen African American (AA) and 26 non-AA patients were included. On average, patients were male, living donor recipients. At 1 year, median GFR was 60 mL/min in the AA cohort and 55.5 mL/min in the non-AA cohort ($p=0.82$). Patient/graft survival was 100%. BPAR occurred in 3 patients (20%) in the AA group, one due to non-adherence and one to a decrease in immunosuppression due to BK viremia. No BPAR was seen in the non-AA group. Mouth ulcers and leukopenia were the most common side effects (40% vs 46.2% and 20% vs 53.8%, respectively). Infection rates were similar between groups with CMV (6 patients in each) and BK viremia (5 vs 6 patients, respectively).

CONCLUSIONS: No significant differences between the AA and non-AA cohort were found in GFR at 1 year. The medication regimen was associated with excellent patient/graft survival and overall tolerability was comparable to previous studies. In conclusion, race did not impact renal outcomes in patients who received this belatacept-based regimen.

Link to presentation: <https://youtu.be/6xTmtJl1AxA>

Presenters: Leia Kent

TITLE: EXPANDING PHARMACIST-LED FATTY LIVER SCREENING AND EDUCATION IN A VETERAN POPULATION

AUTHORS: Leia Kent, Jessica Holleman, Lindsey Cross

OBJECTIVE: Recruit patients for pharmacist-led non-invasive transient elastography evaluation

SELF ASSESSMENT QUESTION: What can pharmacists recommend to a patient identified with fatty liver disease?

BACKGROUND: The purpose of this quality improvement project is to expand pharmacy services by recruiting, screening, and educating patients regarding non-alcoholic fatty liver disease (NAFLD) and its complications. NAFLD is the second-most common cause of liver transplant and third-most common cause of hepatocellular carcinoma. Among patients with NAFLD, cardiovascular disease is the most common cause of death. Managing cardiovascular risk factors such as diabetes, hypertension, and dyslipidemia is recommended for patients with NAFLD.

METHODOLOGY: Eligible patients are those with a recent new appointment with a primary care clinical pharmacy specialist (CPS) for type 2 diabetes, hypertension, or dyslipidemia. Patients were excluded if pregnant, have an implantable medical device, unable to fast for 3 hours prior to evaluation, or unable to maintain appropriate body positioning. A standardized note template will be entered into the electronic medical record to document non-invasive transient elastography results, education provided to the patient, and recommendations for the patient's primary care CPS.

RESULTS: Twenty-one patients were identified for non-invasive transient elastography evaluation. Patients were identified from the clinic FAY PACT CPS 11. Of these 21 patients, 20 patients accepted non-invasive transient elastography evaluations and 1 patient declined. 13 evaluations have been completed. Of the 13 evaluations, 77% of patients had a steatosis score of S3, indicating fatty liver disease with more than 66% of hepatocytes filled with fat. Of the 13 evaluations completed, 54% had a fibrosis score of F0, 8% had a fibrosis score of F1, 15% had a fibrosis score of F2, and 23% had a fibrosis score of F3. Pharmacist interventions included initiation of Chantix for smoking cessation and an increase or change in current statin therapy to reach high intensity

CONCLUSIONS: This project has expanded pharmacy services by recruiting, screening, and educating patients in the primary care clinic.

<https://youtu.be/qCztnrgOs0k>

Presenters: Rebecca Panter

TITLE: Impact of a COVID-19 pandemic-driven telehealth program conducted by a rural, primary care clinic on glucose control in adult patients with diabetes

AUTHORS: Rebecca Panter, Jason Moss, Kim Kelly, Ruthanne Baird

OBJECTIVE: Describe the impact telehealth encounters had on HbA1c control at rural Harnett Health clinics.

SELF ASSESSMENT QUESTION: Which recommendations can be made during telehealth encounters?

BACKGROUND: On March 14, 2020, the North Carolina governor implemented Executive Order 117 to help limit the spread of SARS-CoV-2 (COVID-19). Harnett Health's small, rural teaching clinics transitioned from traditional visits to telehealth encounters to help decrease the spread of COVID-19. Patients familiar with physical visits had to manage these new safety restrictions in their lives at work or home – and now changes in their health care visits. When taking the sudden nature of telehealth implementation into consideration, it is imperative that we understand the impact on patients with diabetes so that we are better able to serve this population.

METHODOLOGY: Patients were included if they were ≥ 18 years of age and diagnosed with type 1 or type 2 diabetes per ICD codes E10.x and E11.x. Patients had to have at least one telehealth encounter between March 15, 2020 and June 30, 2020 and an HbA1c measurement 3 to 6 months before and after the telehealth encounter. Patients were excluded if they were a resident of a skilled nursing or long-term care facility at the time of enrollment or if their HbA1c was at or below goal before the first telehealth encounter. The primary endpoint was the average change in HbA1c in patients between September 14, 2019 and March 14, 2020 and April 15, 2020 and December 30, 2020. Secondary endpoints include the number of recommendations and type of recommendations made during the telehealth encounters.

RESULTS: For the primary endpoint, the mean difference between the final and initial values was -0.4 (95%CI: -0.1 to -0.7). When reviewing types of recommendations made during the encounters, 73.6% of patients did not receive life style recommendations and 86.7% did not receive any medication recommendations.

CONCLUSIONS: Results are suggestive of positive benefits in the management of diabetes via telehealth encounters. The number of patients that did not receive any recommendations suggests that there is room to improve the process of telehealth encounters.

C Observation of transition to oral loop diuretics before discharge and risk of readmission in heart failure with preserved ejection fraction (HFpEF) Room D

Presenters: Sarah Medeiros

OBJECTIVE: Evaluate the effect of transitioning intravenous to oral loop diuretics in patients with acute decompensated HFpEF.

SELF ASSESSMENT QUESTION: Which medication has proven mortality benefit in patients with HFpEF?

PURPOSE: The purpose of this study is to evaluate the effect of transitioning intravenous to oral loop diuretics at least 24 hours before discharge on readmission rates in patients hospitalized for acute decompensated HFpEF.

METHODS: Retrospective cohort analysis comparing adult patients hospitalized for acute decompensation of HFpEF who received intravenous loop diuretics and were then transitioned to an oral loop diuretic within 24 hours of discharge versus greater than 24 hours before discharge. The primary endpoint is 30-day all-cause hospital readmission rates. Secondary endpoints include heart failure on heart failure readmissions, mortality, and length of hospital stay. Time observed on an oral loop diuretic prior to discharge will be defined as the date and time of the first dose of oral loop diuretic subtracted from the date and time of discharge in the electronic medical record without further administration of an IV loop diuretic. Patients will be included in our analyses if they meet the following criteria: admission to University of Tennessee Medical Center (UTMC) for acute decompensation of HFpEF, age of 18 years or older, received an intravenous loop diuretic during hospitalization and received a prescription for an oral loop diuretic at discharge. Patients will be excluded if they meet any of the following criteria: documentation of heart failure with reduced ejection fraction, duration of hospitalization less than 48 hours, cirrhosis, or end-stage renal disease requiring dialysis.

RESULTS/DISCUSSION: The two cohorts had similar baseline characteristics. The average age was 72 in the < 24 hour group and 74 in the >24 hour group and majority were white male with an average LVEF of 58% and BMI of 33.4. Most patients were admitted to the acute care floor as opposed to an intensive care unit. More patients in the IV loop >24 hour group received a cardiology consult which may be indicative of a sicker population at baseline. The primary outcome of all cause 30 day readmission was not statistically significant 25.3% in <24 hour group and 30% in >24 hour group with a P value of 0.55. However, secondary outcomes of 60 and 90 day heart failure readmission and all-cause readmission tended to clinically favor the IV diuretic <24 hours despite not being statistically significant.

<https://youtu.be/3Z7R8xa9uc0>

R Effect of Tamsulosin on Rates of Indwelling Urinary Catheter Reinsertion in Trauma Patients Room B

Presenters: Chris Thai

TITLE: Effect of Tamsulosin on Rates of Indwelling Urinary Catheter Reinsertion in Trauma Patients

AUTHORS: Chris Thai, Tyson Kilpatrick, Doug Wylie

OBJECTIVE: Describe the impact of tamsulosin administration on rates of recatheterization in trauma patients.

SELF ASSESSMENT QUESTION: Which of the following is true of the impact noted from tamsulosin administration in the TBICU?

BACKGROUND: Patients with an indwelling urinary catheter (IUC) are at increased risk for infectious and non-infectious complications with each IUC placement. While early removal is desired, development of acute urinary retention can lead to recatheterization and its attendant risks. It has been hypothesized that usage of tamsulosin, a selective alpha-1-A adrenergic antagonist commonly used to treat urinary retention in men with benign prostatic hyperplasia, may decrease the need for recatheterization in patients who have recently had an IUC removed.

METHODOLOGY: This retrospective cohort study examined data from patients over 18 years of age, admitted to a trauma and burn intensive care unit (TBICU) from August 1, 2019 through July 31, 2020, with orders placed for an IUC. Those receiving tamsulosin any time within seven days prior to IUC insertion and 48 hours after IUC removal were compared with those without administration of tamsulosin. The primary outcome was unadjusted odds of recatheterization. The secondary outcome was propensity score-matched odds of recatheterization.

RESULTS: 396 patients with an IUC were included (mean age 49.3±19.5 years; 30.6% female). There were 36 patients who received tamsulosin within the exposure window, and 360 patients without exposure, including 83 who received tamsulosin outside the exposure window. 30.6% in the exposure group were re-catheterized versus 29.7% in the non-exposure group, unadjusted OR 1.04 (95% CI = 0.49-2.19). Matching with propensity scores yielded similar results, OR 0.76 (95% CI = 0.28-2.12).

CONCLUSIONS: Tamsulosin administration was not associated with decreased rates of recatheterization among patients admitted to the TBICU. These findings do not support the use of tamsulosin to reduce rates of recatheterization in this patient population.

Video link: https://youtu.be/_O0yPs5HyUw

Presenters: Jillian Davis

Title: Glycemic control during insulin infusion guided by non-electronic DKA-focused protocol versus equation-based management of non-DKA hyperglycemia in critically ill patients

Authors: Jillian Davis, Joshua Chestnutt

Objective: Compare incidence of hypoglycemia and glycemic variability with non-electronic, DKA-focused versus equation-based titration of insulin infusions in critically ill patients with non-DKA hyperglycemia.

Self-Assessment Question: What are potential benefits of equation-based over non-electronic titration of insulin infusions in critically ill patients with non-DKA hyperglycemia?

Background: Electronic glycemic management systems (eGMS) utilize equation-based titration and insulin sensitivity factors to guide individualized management of continuous insulin infusions. When compared to non-electronic titration of insulin infusions, use of eGMS has been associated with lower incidence of hypoglycemia and less glycemic variability. The primary objective of this analysis was to compare incidence of hypoglycemia and glycemic variability with use of a non-electronic diabetic ketoacidosis (DKA)-focused protocol versus equation-based management of insulin infusions before and after implementation of an equation-based protocol in critically ill patients with non-DKA hyperglycemia.

Methodology: Retrospectively, an electronic health record report identified adults ≥ 18 years of age admitted to an intensive care unit (ICU) in whom a continuous insulin infusion was initiated for management of hyperglycemia before implementation of an equation-based protocol, from July 2019 through December 2020, and after protocol implementation on March 1, 2021. The titration equation was embedded within an order set and derived from an eGMS utilized at all other system facilities, but not present at the study facility. Excluded patients were pregnant women and those for whom an insulin infusion was initiated for management of DKA. Primary endpoints were incidence of hypoglycemia and degree of glycemic variability among included patients for whom non-electronic, DKA-focused titration was utilized versus equation-based insulin infusion titration before and after protocol implementation. Secondary endpoints were mean duration of insulin infusion, mean ICU length of stay, and in-hospital mortality between the study groups before and after protocol implementation.

Results: In progress

Conclusions: In progress

Presentation Link: <https://youtu.be/gf1ULVUiqQY>

I Evaluation of the diagnostic utility of metagenomic next-generation sequencing testing for pathogen identification in infected hosts

Presenters: Austin Williams

TITLE: Evaluation of the diagnostic utility of metagenomic next-generation sequencing testing for pathogen identification in infected hosts

AUTHORS: Austin Williams; Anna Estes; Zach Webster; Alexander Milgrom; Chao Cai; Majdi Al-Hasan; P. Brandon Bookstaver

OBJECTIVE: List factors associated with high and/or low diagnostic utility of mNGS testing.

SELF ASSESSMENT QUESTION: What is the most common way that mNGS testing has been used to change antimicrobial therapy?

BACKGROUND: Metagenomic next-generation (mNGS) testing is a blood test to detect cell-free DNA to identify pathogens, though data on its utility are lacking. The purpose of this study is to evaluate the clinical utility of mNGS testing and to identify factors associated with high diagnostic utility.

METHODOLOGY: All mNGS tests ordered from June 2018 through May 2020 were screened. Tests ordered for clinical diagnostic purposes in hospitalized patients at Prisma Health Richland or Prisma Health Children's hospital were included. Repeat tests were evaluated on an individual basis. Criteria to determine diagnostic utility were created a priori. Two researchers independently reviewed tests and categorized each to either high or low diagnostic utility. A stepwise regression analysis was used to identify factors associated with high diagnostic utility.

RESULTS: Ninety-six individual tests among 82 patients were included. At least one potential pathogen was identified in 58% of tests. Among 112 individual pathogens identified, there were 74 bacteria, 25 viruses, 12 fungi and 1 protist. Forty-six tests were determined to be high utility and 36 tests were determined to be low utility. Antimicrobials were changed in 67.4% of high utility tests and 11.8% of low utility tests ($p < 0.0001$). Of the antimicrobial changes, de-escalation occurred as a result in 21/46 high utility tests and 1/34 low utility tests. In the multivariate analysis, a positive test (OR = 10.9; 95% CI, 3.2-44.4) and consult to company medical director (OR = 3.6; 95% CI, 1.1-13.7) remained independently associated with high utility.

CONCLUSIONS: Positive mNGS tests are closely associated with high utility and are most commonly used to de-escalate antimicrobials while prior antimicrobial use and repeat testing did not appear to influence diagnostic utility. We conclude that all tests be accompanied by a consult with the company medical director.

https://youtu.be/snP_F70wbh8

I Interleukin-6 inhibitors for the treatment of cytokine release syndrome secondary to coronavirus disease 2019 infection at a community hospital

Room I

Presenters: Kyle Manning

TITLE: Interleukin-6 inhibitors for the treatment of cytokine release syndrome secondary to coronavirus disease 2019 infection at a community hospital

AUTHORS: KB Manning, CW Whitman, JM Tubbs, DT Childress, L Hohmann, J Leon, CE Harrison

OBJECTIVE: Describe the clinical response associated with interleukin-6 inhibitors in hospitalized patients with severe coronavirus disease 2019 (COVID-19) pneumonitis at a community hospital.

SELF ASSESSMENT QUESTION: What is tocilizumab's mechanism of action?

BACKGROUND: The purpose of this study was to evaluate clinical response in hospitalized patients with severe coronavirus disease 2019 (COVID-19) receiving interleukin-6 (IL-6) inhibitors plus standard of care against patients treated with standard of care only.

METHODOLOGY: A retrospective, observational cohort study was conducted on patients hospitalized at a community hospital with COVID-19 infections from March 2020 to May 2020. The primary outcome was clinical response, defined as an improvement of at least 2 categories relative to baseline on a 7-category ordinal scale up to hospital discharge or 30 days. Adjusted analyses controlling for covariates (length of stay, level of acuity, demographics, and Charlson Comorbidity Index) were conducted.

RESULTS: A total of 133 patients met inclusion criteria. 30 patients received an IL-6 inhibitor plus SOC and 103 received SOC alone. There was no statistical difference in the primary outcome between groups as 76.7% in the SOC alone group and 70.0% in the IL-6 inhibitor group met the defined endpoints for clinical response ($p=0.477$). In the adjusted analysis, patients treated with IL-6 inhibitors were approximately four times more likely to meet the primary endpoint [Exp(B) = 4.325; $p = 0.038$, 95% CI (1.09, 17.18)].

CONCLUSIONS: Compared to standard of care only, IL-6 inhibitors were not associated with a significant clinical improvement. However, after adjusting for covariates, this study suggests that the initiation of IL-6 inhibitors in patients with early COVID-19 pneumonitis before progression to the ICU may be associated with improved clinical status. The appropriate clinical status and time to initiate IL-6 inhibitors remains unclear, and randomized, controlled trials are needed to collect more evidence.

Links

Slides: https://drive.google.com/drive/folders/12TtIEGSFnVy_RanJmCn4CK8qtxdYAcWm?usp=sharing

AV recording: <https://drive.google.com/file/d/1k2Pg9IBgNvM4nvwV8Z1ITxOBoAXWUaTr/view?usp=sharing>

L Electrolyte protocol modifications and implementation in a large community hospital

Room E

Presenter: Lauren Butler

TITLE: Electrolyte protocol modifications and implementation in a large community hospital

AUTHORS: Lauren Butler, Cara Bujanowski, Jerry Robinson

OBJECTIVE: Identify modifications made in an attempt to improve the effectiveness and safety of an electrolyte protocol used at a large community hospital.

SELF ASSESSMENT QUESTION: Which of the following patients are receiving appropriate phosphorus replacement per this institution's electrolyte protocol?

BACKGROUND: Since moving to a new electronic medical record system, medication errors and feedback from clinical staff concerning issues with the current electrolyte protocol have been identified. The purpose of this study was to evaluate the effectiveness and safety of the current electrolyte protocol for phosphorus replacement, implement modifications, and then reevaluate post-implementation effectiveness and safety.

METHODOLOGY: A retrospective chart review included 150 adult inpatients prescribed IV sodium phosphate and 150 adult inpatients prescribed oral phosphate powder for phosphorus replacement through the current electrolyte protocol from November 2020 to December 2020. Data collection included age, weight, serum creatinine, continuous renal replacement therapy status, hemodialysis status, phosphorus level before and after electrolyte replacement, dose, result (sub-therapeutic, therapeutic, or supra-therapeutic), and appropriateness. Additionally, issues identified with the current electrolyte protocol and recommendations for improvement were presented to the institution's P&T Committee. Post-implementation effectiveness and safety will be reevaluated for phosphorus replacement, including evaluating medication errors.

RESULTS: Prior to implementation, 40.67% of patients receiving IV sodium phosphate were therapeutic after the first bolus compared to 6% in the oral phosphate group. However, the average baseline phosphorus level in the IV sodium phosphate group was 2.06 mg/dL compared to 2.2 mg/dL in the oral phosphate group. Additionally, there was approximately 49 (16.3%) errors among the 300 patients evaluated. Results of post-implementation data collection are pending, due to modifications awaiting implementation in the electronic medical record system.

CONCLUSIONS: In progress

P Evaluating the impact of pharmacist-led interventions on improving prescribing rates of alcohol use disorder pharmacotherapy

Room G

Presenters: Kalyn Pounders

TITLE: Evaluating the impact of pharmacist-led interventions on improving prescribing rates of alcohol use disorder pharmacotherapy

AUTHORS: Kalyn D. Pounders, Rashida A. Fambro, Stephanie A. Oh

OBJECTIVE: To describe how AUDIT-C scores can be used to determine when pharmacotherapy is appropriate for alcohol use disorder treatment

SELF ASSESSMENT QUESTION: What AUDIT-C scores indicate that the patient may benefit from pharmacotherapy assisted treatment?

BACKGROUND: Previous studies have shown that alcohol use disorder (AUD) pharmacotherapy is severely underutilized despite high prevalence of diagnosis. The Atlanta VA Health Care System currently has a real-time dashboard that identifies patients with an active diagnosis of AUD who may be eligible for pharmacotherapy. This project aimed to assess the prescribing rates of AUD pharmacotherapy before and after pharmacist-led interventions in order to identify quality improvement opportunities.

METHODOLOGY: For this retrospective chart review, a recommendation template was created to maintain standardization. The real-time dashboard identified patients with an active diagnosis of AUD not in remission. Identified patients meeting inclusion criteria were reviewed by a pharmacist. After review, eligible patients were recommended either acamprosate, naltrexone oral tablets, naltrexone intramuscular injection, disulfiram, or topiramate. Upon review, the impact of pharmacist-led interventions on prescribing rates was assessed.

RESULTS: A total of 65 patients were reviewed and provided recommendations for AUD pharmacotherapy. Oral naltrexone was recommended in 56 out of 65 (86.15%) patients. Only 3 patients (4.62%) had active prescriptions for AUD pharmacotherapy at the time of post intervention review. 26 out of 62 (41.94%) patients without an active AUD pharmacotherapy prescription during post intervention review had no documented offer of AUD pharmacotherapy within the electronic medical record. 6 out of those 62 patients (9.68%) declined medication assisted treatment despite being offered.

CONCLUSIONS: This method of pharmacist-led interventions did not significantly improve prescribing rates of AUD pharmacotherapy indicating there is room for quality improvement. The future direction of this initiative should focus on improving communication with prescribers in addition to creating educational opportunities for patients and prescribers within the Atlanta VA Health Care System.

T Pharmacist versus Non-Pharmacist Culture Callback Response in the Emergency Department

Room A

Presenters: Tyler Leroy

TITLE: Pharmacist versus Non-Pharmacist Culture Callback Response in the Emergency Department

AUTHORS: Tyler Leroy, Jessica Michal, Stephanie Milliken, Steven Robinette

OBJECTIVE: Demonstrate differences in appropriateness between pharmacist and non-pharmacist driven culture callback response in the emergency department.

SELF ASSESSMENT QUESTION: What is the most frequently made error when changing therapy for culture callback patients?

BACKGROUND: Bacterial infections result in roughly 100 million emergency department visits per year. Due to the high incidence of presentation, it is imperative that recommendations post-discharge are therapeutically optimal and patient appropriate. This research seeks to assess actions taken and quantify recommendation appropriateness of pharmacists and non-pharmacists in emergency department culture callback responses.

METHODOLOGY: A retrospective cohort was conducted on patients at least 8 years of age with positive urine or blood cultures who presented to any McLeod Health emergency department from November 1st, 2019, to November 1st, 2020. A sample size of 109 patients per study arm (pharmacists, non-pharmacist) was determined using alpha of 0.05, beta set at 0.1, and an extrapolated correctness rate of 80% for pharmacists and 60% for non-pharmacists. Culture callback response appropriateness was assessed utilizing a guideline-directed algorithm developed for the purpose of this project. A kappa coefficient was generated via non-pharmacist review of 10% of the total patient population to establish agreement.

RESULTS: In-progress

CONCLUSIONS: In-progress

A DEVELOPMENT AND IMPLEMENTATION OF A PERIOPERATIVE AND INTRAOPERATIVE GLYCEMIC MANAGEMENT PROTOCOL IN A COMMUNITY HOSPITAL

Room G

Presenters: Kevin Hsieh

TITLE: DEVELOPMENT AND IMPLEMENTATION OF A PERIOPERATIVE AND INTRAOPERATIVE GLYCEMIC MANAGEMENT PROTOCOL IN A COMMUNITY HOSPITAL

AUTHORS: Kevin Hsieh, Sarah Murphy, Megan Freeman, Amy Noonkester, Mary-Beth Marandola-Kenvin

OBJECTIVE: Describe intraoperative and perioperative glycemic management in a community hospital setting.

SELF ASSESSMENT QUESTION: What is the prevalence of perioperative hyper- and hypoglycemic events in the diabetic patient population undergoing surgical procedures?

BACKGROUND: Poor glycemic management in perioperative and intraoperative surgical phases has been associated with adverse clinical outcomes such as increased rates of infection, length of hospitalization, and mortality. Current guidelines recommend perioperative and intraoperative glycemic targets of 140 – 180 mg/dL. The goal of this review is to determine the prevalence of perioperative hyperglycemia and develop a standardized process for glycemic management in the perioperative setting.

METHODOLOGY: A retrospective chart review is being conducted between July 2019 – July 2021 for diabetic adult patients undergoing surgical procedures. Patients were identified by diabetes diagnosis or insulin administration in the perioperative setting. Data collected includes frequency of blood glucose measurements, percentage of patients within glycemic targets, treatment of hypo- and hyperglycemic events, and length of surgical procedure.

RESULTS: Data was collected on 130 patients. 90 patients were identified by diabetes diagnosis and 40 patients identified by insulin administration perioperatively.

Of the patients identified by diagnosis, point-of-care testing (POCT) was performed on 74.4% preoperatively and 25.6% post-operatively. 16.1% of preoperative POCT were above goal and 60.8% were above goal post-operatively. 20% of those pre-operative hyperglycemic values were treated whereas 50% of patients were treated postoperatively. Following treatment, no patient reached the glycemic target. No patient experienced hypoglycemia.

Of patients identified by insulin administration, 90% had preoperative BG >180 mg/dL (median BG 281 mg/dL). 87.5% had postoperative glucose >180 mg/dL (median BG 235 mg/dL). 7.5% of these patients reached the glycemic target following insulin administration.

CONCLUSIONS: Preliminary analysis reveal opportunities for improving perioperative glycemic management. Preoperative hyperglycemia was low, but POCT testing was inconsistent. Opportunities for improvement include increasing frequency of POCT monitoring and insulin administration for hyperglycemic events.

B Evaluation of Physician-pharmacist Education on Attitudes, Beliefs, and Knowledge Surrounding Outpatient Antimicrobial Stewardship in Family Medicine Resident Physicians

Room K

Presenters: Hannah Denham

TITLE: Evaluation of Physician-pharmacist Education on Attitudes, Beliefs, and Knowledge Surrounding Outpatient Antimicrobial Stewardship in Family Medicine Resident Physicians

AUTHORS: Hannah Denham, PharmD Stephanie Mitchell, DO Shaunta' Chamberlin, PharmD, BCPS, FCCP William Dabbs, MD Sarah Eudaley, PharmD, BCPS

OBJECTIVE: Describe attitudes, beliefs, and knowledge surrounding outpatient antimicrobial prescribing in Family Medicine residents.

SELF ASSESSMENT QUESTION: What is a way that pharmacists can assist in positively impacting outpatient antimicrobial prescribing?

BACKGROUND: Determine attitudes, beliefs, and knowledge surrounding outpatient antimicrobial stewardship in Family Medicine residents and before and after a targeted physician-pharmacist educational intervention

METHODOLOGY: This is a three-phase, multi-center, cross-sectional study of Family Medicine residents within approximately 12 family medicine residencies in the United States. Phase 1 includes administration of an anonymous online survey consisting of 3 specific sections regarding outpatient antimicrobial prescribing: attitudes, beliefs, and knowledge. Phase II will be development of a targeted physician-pharmacist-led educational intervention based on survey data. The intervention will focus on providing education and information in order to change beliefs and attitudes and expand knowledge surrounding outpatient antimicrobial stewardship, resistance, and appropriate use. Phase III will be administration of the same survey to determine the effects of the educational activity. The primary outcome will be change in resident attitudes, beliefs, and knowledge pre/post the educational intervention. The secondary outcomes will be change in attitudes, beliefs, and knowledge pre/post using the following variables: intern (PGY1) vs residents (PGY2, PGY3), student ID rotation vs none, BS in microbiology vs not, male vs female, MD vs DO, community vs academic medical center (setting of residency program), and TN vs other states. Wilcoxon signed rank will be used for data analysis. Logistic regression will be used to determine factors that influence attitudes, beliefs, and knowledge.

RESULTS: In progress

CONCLUSIONS: In progress

C Retrospective evaluation of the effect of having pharmacist-managed warfarin anticoagulation for LVAD patients

Room E

Presenters: Meredith Sutton

TITLE: Retrospective evaluation of the effect of having pharmacist-managed warfarin anticoagulation for LVAD patients

AUTHORS: Meredith Sutton, Charlie Stoner, Elizabeth Benedetti, Dominique Gignac, Richa Agarwal, Beiyu Liu, Emily Poehlein

OBJECTIVE: To evaluate potential differences in effectiveness of warfarin monitoring by pharmacists compared to monitoring by other providers in patients with left ventricular assist devices

SELF ASSESSMENT QUESTION: True or False: Patients with left ventricular devices may have their INR goals adjusted based on their bleeding history.

True

False

BACKGROUND: Left ventricular assist devices (LVADs) offer an alternative to heart transplantation or offer the ability to survive until a heart becomes available. LVADs come with risks of both bleeding and thrombosis complications and warfarin is the mainstay of anticoagulation therapy. In 2018, our institution developed a pharmacist-managed LVAD anticoagulation service. The purpose of this retrospective, single center, cohort study is to determine if there is a difference in time in therapeutic international normalized ratio (INR) range in LVAD patients on warfarin when managed by pharmacists compared to management by other practitioners.

METHODOLOGY: This single-center, retrospective, pre-post study included adult patients with new LVAD implants from 07/2014-07/2016 whose anticoagulation was managed by the LVAD department during 2017 and patients with new LVAD implants from 07/2016-07/2018 whose anticoagulation was managed by pharmacists during 2019.

Included patients were at least 18 years of age, and had a HeartMate II, HeartWare HVAD, or HeartMate 3 device. The primary endpoint was the time in therapeutic INR range during the follow-up year. The secondary endpoints included the proportion of patients with bleeding and clotting events that required an ED visit or hospital admission.

RESULTS: A total of 164 patients were included in the analysis. The time in therapeutic INR range for patients in the pharmacist-managed group was 69.4% compared to 63.1% in the pharmacist group ($p=0.016$). The proportion of patients with an ED visit or hospital admission for bleeding was 26.3% and 28.4% in the pharmacist and provider group, respectively. The proportion of patients with an ED visit or hospitalization for a clotting event was 6.6% and 5.7% for the pharmacist-managed group and provider-managed group, respectively.

CONCLUSIONS: This study suggests that patients with left ventricular assist devices that have their anticoagulation managed by pharmacists spend more time in therapeutic INR range compared to management by other providers.

R Comparing the Incidence of Hematoma Expansion after Desmopressin Administration in Patients with Spontaneous Intracerebral Hemorrhage on Antiplatelet Medications

Room C

Presenters: Taylor Gregory

TITLE: Comparing the Incidence of Hematoma Expansion after Desmopressin Administration in Patients with Spontaneous Intracerebral Hemorrhage on Antiplatelet Medications

AUTHORS: Taylor Gregory, Erin Creech, Elizabeth Wright

OBJECTIVE: Describe desmopressin's effect on hematoma expansion in patients experiencing sICH while taking antiplatelet medications.

SELF ASSESSMENT QUESTION: Is desmopressin effective in preventing hematoma expansion?

BACKGROUND: Spontaneous intracerebral hemorrhage (sICH) is associated with high morbidity and mortality. Expansion of the initial hematoma is a marker of poor prognosis but may be preventable. The use of antithrombotic medications can adversely affect outcomes, specifically hematoma expansion. This study aimed to determine the efficacy of desmopressin (DDAVP) in reducing the incidence of hematoma expansion in patients taking antiplatelet medications after a sICH.

METHODOLOGY: This was a single center, retrospective cohort study that included adult patients admitted to the Neuroscience, Medical, or Surgical Trauma Intensive Care Units for sICH with documented DDAVP administration between January 2016 and January 2020. Patients were stratified by those on antiplatelet therapy at baseline versus those who were not. Patient demographics, laboratory values, DDAVP dosage, timing of interventions and imaging were all collected. The primary endpoint was to compare the incidence of hematoma expansion. Secondary endpoints included ICU and hospital length of stay, in-hospital mortality, and functional outcome. This study was approved by the Institutional Review Board.

RESULTS: This study screened 405 patients with at least one order of DDAVP for eligibility. Ultimately, 23 individuals with no prior antiplatelet therapy and 16 with prior antiplatelet therapy were included. The baseline characteristics between these groups were similar. Exceptions included the antiplatelet group being significantly older and no antiplatelet therapy group having a higher incidence of alcohol use disorder and ICH score. The timing of DDAVP administration, neurosurgical intervention, and of imaging confirming expansion were all similar between the groups. There were no statistically significant differences found for the primary and secondary outcomes.

CONCLUSIONS: Desmopressin is not effective in preventing hematoma expansion in patients with sICH on prior antiplatelet therapy. Further study regarding the timing of desmopressin administration is warranted.

Link to presentation: <https://youtu.be/JQQdsPPifs4>

R Comparison of a pharmacist- vs nurse-directed emergency department culture review service on positive bacterial culture and rapid diagnostic test interventions.

Room B

Presenters: Lauren Cooper

TITLE: Comparison of a pharmacist- vs nurse-directed emergency department culture review service on positive bacterial culture and rapid diagnostic test interventions.

AUTHORS: Lauren Cooper, Veena Patel, Ruthanne Baird, Kim Kelly and Jason Moss

OBJECTIVE: Describe an effective pharmacist-led ED culture review service model to help ensure more appropriate antibiotic stewardship in the ED setting.

SELF ASSESSMENT QUESTION: According to this study, how does a pharmacist-directed culture review service help ensure more appropriate antibiotic selection compared to another healthcare professional-directed culture review service in the ED setting? Select all that apply.

BACKGROUND: Determine if there is a difference between a pharmacist-led emergency department (ED) culture review service compared to the previous nurse-led service with respect to the percentage of documented interventions for adult ED patients with positive cultures (urine, blood, wound) and/or rapid diagnostic test (RDTs) results requiring action.

METHODOLOGY: ED patients ≥ 18 years of age who received positive cultures (urine, wound, blood or stool) or RDT results and were evaluated and discharged from the ED from 9/24/2018 to 1/24/2019 (nurse-directed service) or from 9/24/2019 to 1/24/2020 (pharmacist-directed service) were included. Patients were included if their positive culture (urine, wound or blood) or RDT (*Chlamydia trachomatis* and *Neisseria gonorrhoea*) is actionable and required intervention. Patients were excluded if the antibiotic administered during the ED visit or a prescription provided upon discharge is regarded as the standard-of-care within corresponding treatment guidelines and the organism is sensitive to the antibiotic prescribed according to susceptibility data for positive culture. Patients were also excluded if the culture was contaminated or if bacteriuria with a colony count $<100,000$.

RESULTS: 113 cultures and/or rapid diagnostic tests (RDTs) were included in the nurse-led program and 113 cultures and/or RDTs were included in the pharmacist-led program. Urine cultures were the most prevalent culture type for both the nurse-led and pharmacist-led group with 74.6% and 62.8% respectively. The percentage of documented interventions on actionable cultures and/or RDTs was 76.9% for the nurse-led vs. 68.1% for the pharmacist-led program ($p = 0.136$). The percentage of documented interventions on actionable cultures and/or RDTs in accordance with clinical guidelines was 85.7% for the pharmacist group vs. 58.85% for the nurse-led group ($p = 0.02$).

CONCLUSIONS: While the percentage of documented interventions on actionable cultures and/or RDTs was not statistically significant, we observed a statistically significant difference in the percentage of documented interventions on actionable cultures and/or RDTs in accordance with clinical guidelines in favor of the pharmacist-led vs. nurse-led service. This finding may translate into a decrease in local antimicrobial resistance rates over time.

R Evaluating antipsychotic prescribing practices at an American Burn Association verified burn center Room D

Presenters: Annalise Labatut

TITLE: Evaluating antipsychotic prescribing practices at an American Burn Association verified burn center

AUTHORS: Annalise Labatut, PharmD, Kristen Robinson, PharmD, Rita Gayed, PharmD, Rohit Mittal, MD

OBJECTIVE: : Discuss AAP prescribing patterns in BICU patients.

SELF ASSESSMENT QUESTION: How can pharmacists evaluate appropriateness of APP continuation on transitions of care?

BACKGROUND: Characterize the prescribing patterns of atypical antipsychotics (AAPs) in patients admitted to the Burn Intensive Care Unit (BICU).

METHODOLOGY: This was a single-center, retrospective chart review of adults admitted to the BICU with a burn injury who received scheduled oral atypical antipsychotics. Prescribing patterns in the ICU and on all transitions of care were analyzed. Additionally, the appropriateness of AAP prescribing at discharge was evaluated. AAPs were considered to be appropriately prescribed at discharge if a patient was continuing a home medication, or if psychiatric consult services recommended continuing at discharge.

RESULTS: During the five year study period, 440 adults were admitted to the BICU with a burn injury, 18.2% of which were prescribed an AAP during their ICU course. Of those prescribed an AAP, 28.8% had a documented underlying psychiatric condition. Most patients were male (70%) with a median age of 41 years (29-55), a median total body surface area burn of 28.8% (16.3-44.5). The median ICU length of stay was 32 days (13-59). AAPs were primarily used to treat agitation/delirium (72.5% of patients). Quetiapine was the most commonly prescribed AAP. On transfer to stepdown, AAPs were continued in 78.4% of patients. Additionally, 67.7% were discharged on an AAP. Of these patients, continuation was considered appropriate in 54% of patients.

CONCLUSIONS: In addition to having an increased risk if ICU delirium, burn patients often suffer from pre-existing and new onset psychiatric disorders. Despite overall lower AAP prescribing in the burn ICU compared to other ICUs, over two thirds of patients initiated on AAPs in the BICU were prescribed AAPs at discharge. AAPs should be evaluated for appropriateness at each transition of care.

Presenters: Kayla Antosz

TITLE: Cost Effectiveness and Clinical Outcomes of Long Acting Lipoglycopeptides Used in Transitions of Care

AUTHORS: Kayla Antosz, Joseph Kohn, Julie Ann Justo, Majdi Al-Hasan, Alexander Milgrom, Benjamin Tabor, P. Brandon Bookstaver

OBJECTIVE: Evaluate the cost effectiveness and clinical outcomes of lipoglycopeptides in comparison to the standard of care.

SELF ASSESSMENT QUESTION: Lipoglycopeptides were associated with an increase in total health care related costs in comparison to standard of care. True or false?

BACKGROUND: Dalbavancin and oritavancin are long-acting lipoglycopeptides (LaLGPs) FDA-approved for one-time only dosing for skin and skin structure infections. The use of these agents in serious, deep-seated infections requiring protracted antibiotic courses is of increasing interest. The purpose of this study is to evaluate the clinical use of LaLGPs in patients requiring protracted antibiotic courses who are not ideal candidates for oral or outpatient parenteral antibiotic therapy.

METHODOLOGY: This is a retrospective, observational, matched cohort study at Prisma Health Midlands of adult patients who received a LaLGP or standard of care for deep-seated infections due to gram-positive bacteria. Patients who received a LaLGP were matched 1:1 to standard of care by age +/- 10 years, infection type, microorganism, and socioeconomic factor. Cost effectiveness is evaluated as total health care related costs between the two groups. Clinical success is determined as a composite endpoint of mortality, recurrence, or need for extended antibiotics. Secondary outcomes include hospital length of stay and total antimicrobial related cost of care.

RESULTS: Clinical failure was not statistically different between the LaLGP cohort and standard of care (22% vs. 30%, $p=0.491$). 6 patients left AMA in the standard of care cohort compared to 0 in the LaLGP ($p<0.022$) and the average hospital duration was 32.0 days and 22.9 days, respectively. The average cost savings per patient was \$30,500.51 in the LaLGP cohort and this was considered to be cost effective.

CONCLUSIONS: The receipt of LaLGPs may be a cost-effective treatment option for patients with deep-seated infections and factors limiting OPAT or oral therapy.

Link: <https://www.youtube.com/watch?v=6weejrZ9PC4>

Presenters: Alex Sierko

TITLE: Evaluation of the Relationship between Chronic Medication Use and COVID-19 Disease

AUTHORS: Alexandra Sierko, Courtney E. Gamston, Kimberly Braxton Lloyd, Jingjing Qian

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify how chronic medications known to impact potential COVID-19 targets might influence disease course and/or severity.

SELF ASSESSMENT QUESTION: Which medications or medication classes might influence COVID-19 disease course and/or severity?

BACKGROUND: COVID-19, caused by the SARS-CoV-2 virus, is a devastating infection that has impacted the entire world population. Although little is known regarding the viral pathogenesis, there are numerous theories related to viral impacts on the body's physiological responses. Recent research has identified potential targets and disease processes directly affected by common medications. These components include the renin-angiotensin aldosterone system (RAAS), vasodilation/ vasoconstriction, serotonin mediated responses, the coagulation cascade, histamine release, and the inflammatory response. The purpose of this project is to determine if chronic use of medications known to impact potential COVID-19 targets influences disease course and/or severity.

METHODOLOGY: A retrospective review of the National COVID Cohort Collaborative (N3C) database was conducted to examine relationships between chronic treatment with certain medications and disease course/severity. In this presentation, preliminary analysis of the impact on all-cause mortality for patients taking chronic histamine-2 receptor antagonist (H2RA) therapy with positive and negative results for COVID testing are reported. Records from patients taking omeprazole were compared as a control for the active treatment of gastroesophageal reflux disease (GERD). Correlation analyses are ongoing to identify relationships between medication use and disease outcomes including symptomology, care needed (e.g. intubation, intensive care unit admission), death, and severity classification.

RESULTS: Preliminary analysis of nearly 800,000 patient records demonstrated significant differences in demographic and comorbidity profiles in COVID positive verses negative patients and patients taking H2RA verses omeprazole therapy. A multivariate analysis will be conducted to determine the impact of H2RA therapy on COVID disease course and outcomes and the impact of demographics and comorbidities on those outcomes.

CONCLUSIONS: In progress

https://docs.google.com/presentation/d/1_gJHCeJutlpnJ6gQPR_ATSnBMvYGMHdbFFxtau26CA0/edit?usp=sharing

Presenters: Lydia Miller

TITLE: EVALUATION OF THE USE OF OUTPATIENT ANTIMICROBIAL THERAPY (OPAT) VERSUS ORAL ANTIBIOTIC THERAPY IN BONE AND JOINT INFECTIONS IN A VETERAN POPULATION

AUTHORS: Lydia G Miller, James A Carr, Todd McCarty

OBJECTIVE: Outline the use of outpatient antimicrobial therapy compared to oral antibiotic therapy for bone and joint infections in a veteran population.

SELF ASSESSMENT QUESTION: Can antimicrobial stewardship be improved by assessing the use of antibiotics for bone and joint infections?

BACKGROUND: Evaluate within a VA Health Care System the use of intravenous versus oral antibiotic use for the treatment of bone and joint infections.

METHODOLOGY: This research project consisted of a retrospective chart review conducted by reviewing electronic medical records and collecting data on a specific data collection form. Patient information was gathered for any patient receiving outpatient parenteral antimicrobial therapy or oral antibiotics for bone and joint infections. The patient chart was reviewed for inpatient infectious disease consults and to collect variables including age, sex, indication, duration of therapy, available culture data, and surgical interventions. For purposes of this study, patients with *Staphylococcus aureus* bacteremia, bacterial endocarditis, any concomitant infection which required a prolonged intravenous course of antibiotics, or septic shock or systemic features requiring intravenous antibiotics were excluded.

RESULTS: Research is currently ongoing.

CONCLUSIONS: Research is currently ongoing

Presenters: Pooja Ojha

TITLE: Improving Time to Administration of Specified Time-Critical Medications

AUTHORS: Pooja Ojha and Ryan Crossman

OBJECTIVE: The objective of this presentation is to evaluate the approaches taken at a community hospital to improve time-to-administration of time critical medications.

SELF ASSESSMENT QUESTION: Did education for the pharmacy and nursing departments plus optimization of the automated dispensing cabinet inventory improve time-to-administration of time-critical medications?

BACKGROUND: Timely medication administration is important within the acute care setting because delays in medication administration may have negative impacts on patient outcomes. Many scheduled medications allow for flexibility during administration (i.e. being given one hour sooner or later than the scheduled time). However, the Institute of Safe Medication Practices (ISMP) and the National Integrated Accreditation for Healthcare Organizations (NIAHO®) define time-critical medications as those that must be given within a one-hour time frame of the scheduled dose (i.e. 30 minutes before or after the scheduled dose). A delay of greater than 30 minutes in the administration of a “time-critical” medication has the potential to cause harm or have a negative impact on the patient’s clinical course or outcome. The aim of this research proposal is to improve time to administration of time-critical medications at Piedmont Columbus Regional.

METHODOLOGY: This is a quality improvement study that will provide universal education to the nursing and pharmacy departments about the appropriate administration of time-critical medications. Further strategies will include:

- Adjusting medications in automated dispensing cabinets to include most time-critical medications in order to avoid delays that may be caused by medication delivery from pharmacy
- Creating one-page reminders to post near automated dispensing cabinets regarding the identification of time-critical medications
- Utilizing badge reminders in order to identify a medication as time-critical

Data collected will not be patient identifiable. Data collected will represent the number of times medication administration was done within the one-hour time frame of the scheduled dose.

RESULTS: In progress

CONCLUSIONS: In progress

○ **Physician Prescribing Patterns of Anti-Infective Prophylaxis and Incidence of Opportunistic Infections in Lymphoma Patients on B-cell Targeted Therapies**

Presenters: David Doan

TITLE: Physician Prescribing Patterns of Anti-Infective Prophylaxis and Incidence of Opportunistic Infections in Lymphoma Patients on B-cell Targeted Therapies

AUTHORS: David Doan, Kelly Valla, Jeffrey Switchenko, Jonathon Cohen

OBJECTIVE: Identify effects of antimicrobial prophylaxis in patients with lymphoma receiving B-cell targeted therapies.

SELF ASSESSMENT QUESTION: Which B-cell targeted agent is associated with the highest incidence of infection?

BACKGROUND: The prescribing patterns of prophylactic antimicrobials among physicians at Winship Cancer Institute are inconsistent in patients taking modern B-cell targeted therapies such as Bruton's tyrosine kinase inhibitors, phosphoinositide 3-kinase inhibitors, and venetoclax for different types of lymphomas. Current guidelines provide minimal guidance on the appropriate prevention and management of opportunistic and non-opportunistic infections in this patient population and the literature offers varied data regarding the true incidence of infections with these agents. The purpose of this study is to develop a better understanding of infection risk in these patients with the aim to ultimately design and implement a protocolized approach for antimicrobial prophylaxis to reduce variability in provider practices and improve overall patient care.

METHODOLOGY: This study is a single-center, retrospective chart review of patients ≥ 18 years old undergoing cancer treatment with ibrutinib, acalabrutinib, zanubrutinib, idelalisib, duvelisib, copanlisib, or venetoclax for chronic lymphocytic leukemia, small lymphocytic lymphoma, mantle cell lymphoma, marginal zone lymphoma, or follicular lymphoma from January 1, 2015 to June 30, 2020. Patients were excluded if they had an active infection at anti-cancer treatment initiation or if they had received ≥ 20 mg of prednisone per day (or dose equivalent) for ≥ 3 weeks prior to initiation of anti-cancer therapy. The primary outcome was to evaluate the prescribing patterns of opportunistic infection prophylaxis among patients receiving B-cell targeted therapies. Additionally, data are being analyzed descriptively and with multivariate statistics to characterize and evaluate patterns associated with the development of opportunistic infections and non-opportunistic infections. Clinical outcomes associated with antimicrobial prophylaxis use in the prevention of opportunistic infections in lymphoma patients on anti-cancer therapies will also be assessed.

RESULTS: A total of 168 patients with a median age of 70 years were analyzed. Most patients were men (67.2%), Caucasian (68.4%), not actively enrolled in a clinical trial (92.2%), and had an ECOG performance status of either 0 or 1 (70.2%). Chronic lymphocytic/small lymphocytic lymphoma was the most common primary malignancy (70.8%), followed by mantle cell lymphoma (16.6%). Ibrutinib (66%), venetoclax (22%), and idelalisib (7.7%) were the most common B-cell targeted agents used. Anti-microbial prophylaxis was prescribed in 82 patients (48.8%) and there were 8 cases of opportunistic infections overall. Non-opportunistic infections were more common, which included 40 patients (23.8%) with a documented infection. Cancer treatment was modified in 25 patients (14.8%) due to infection.

CONCLUSIONS: Overall, the incidence opportunistic infections is low. Of the patients who developed an opportunistic infection, 87.5% were on antimicrobial prophylaxis that covered that opportunistic infection. Given this, antimicrobial prophylaxis may still be warranted in lymphoma patients on B-cell targeted therapies. Using these data and further understanding this patient population, protocols can be developed to standardize care.

<https://www.youtube.com/watch?v=JIQBgkXGrY>

Presenters: Abigail Bouknight

TITLE: Automatic dispensing cabinet optimization in a large, academic medical center

AUTHORS: Abigail Bouknight, Cortney Dodson, Derek Rhodes, Laura Holden

OBJECTIVE: Assess the impact of an optimization algorithm on automated dispensing cabinet efficiency

SELF ASSESSMENT QUESTION: What are the benefits of utilizing an algorithm to optimize ADC inventory?

BACKGROUND: Automated dispensing cabinets (ADCs) have been utilized as a component of the decentralized pharmacy model since the late 1980s as a strategy to improve efficiency (ISMP). While the benefits of ADCs are certainly recognized, assessing optimization of such machines is important to ensure operational efficiency in the healthcare system. Mathematical algorithms are one approach to optimization by evaluating inventory management and adjusting maximum and minimum par levels. The hope with this method is that once an ADC is optimized, there will be a reduction in the number of stock-outs and improved vend:fill ratios. The purpose of this study is to implement a mathematical algorithm on pre-identified machines and evaluate its effectiveness at improving ADC output.

METHODOLOGY: Four ADCs, two intensive care units and two cardiac telemetry units, will be selected for optimization via a previously validated mathematical algorithm. The algorithm will be applied to each medication that has been identified as standard stock. Minimum and maximum par values for each of these medications will be manually adjusted in the ADCs based on the algorithm. Each machine will be analyzed after 60 days of operating under the optimization algorithm. Overall total stock-outs and vend:fill ratios will be evaluated in the before and after periods.

RESULTS: Both the primary outcome (stock-outs) and secondary outcomes (vend:fill) show 3 of 4 machines showing positive percent change post implementation.

CONCLUSIONS: Mathematical algorithms should be considered as an opportunity for successful ADC optimization in a large, academic medical center.

Presenters: Tatyana Givens

TITLE: Benefits Paid for Home or Outpatient INR Monitoring versus Facility INR Monitoring

AUTHORS: Tatyana Givens, Ricky Chan, Ashley Woodhouse

OBJECTIVE: Identify the healthcare dollars benefit paid for patients receiving facility INR monitoring to home and outpatient INR monitoring services.

SELF ASSESSMENT QUESTION: How do healthcare dollars benefit paid differ between home/outpatient and in-clinic INR monitoring?

BACKGROUND: Criteria for billing and scope of supervision surrounding facility or home and outpatient INR monitoring services are different, but evidence supports that clinical outcomes are similar. The purpose of this study was to compare the healthcare dollars benefit paid for patients receiving facility INR monitoring to home/outpatient INR monitoring to highlight economical options.

METHODOLOGY: Eligible patients were those 18 years of age or older receiving chronic (> 3 months) warfarin therapy management at the Center for Medication Management via facility INR monitoring or home and outpatient INR monitoring services. Data was assessed by final claims analysis for total healthcare dollars benefit paid (defined as the total amount paid by a third-party company and patient) and total out of pocket costs for patients receiving home/outpatient INR monitoring and facility INR monitoring. INR results for September 2019 through September 2020 were collected to calculate time in therapeutic range (TTR) and validate current evidence outcomes.

RESULTS: Forty-six patients were included in this IRB-approved study. Sixteen patients were included in the home/outpatient INR monitoring group and 30 patients were included in the in-clinic INR monitoring group. Average healthcare dollars paid (each visit) for home/outpatient INR monitoring and in-clinic INR monitoring were \$5.91 and \$94.20, respectively. Average out of pocket cost (each visit) for home INR monitoring and in-clinic INR monitoring were \$0.71 and \$25.33, respectively. TTR for home INR monitoring and in-clinic INR monitoring were 70% and 71%, respectively.

CONCLUSIONS: Reimbursement rates differ considerably for these two therapeutically equivalent interventions.

Results reveal that patients who monitor INR at home have reduced co-payment costs which might lead to enhanced quality of life while achieving equivalent therapeutic outcomes when compared to in-clinic INR monitoring.

Audiovisual recording link: https://youtu.be/XLix_CpSpQA

Presenters: Shelbie Foster

TITLE: Impact of clinical decision support on outpatient fluoroquinolone prescribing

AUTHORS: Foster S, May A, Quairoli K, Hester A, Kandiah S, Advani S

OBJECTIVE: To assess the change in percentage of inappropriate fluoroquinolone prescriptions written at GHS outpatient clinics before and after CDS panel implementation.

SELF ASSESSMENT QUESTION: In what ways can pharmacists work to continually reduce the rate of inappropriate fluoroquinolone prescriptions?

BACKGROUND: Improving antibiotic prescribing practices is critical to prevent drug resistance, reduce adverse effects, and minimize the use of excess healthcare resources. The majority of antibiotic expenditures in the United States are associated with the outpatient setting and the Centers for Disease Control and Prevention (CDC) estimates that at least 30% of antibiotics prescribed in the outpatient setting are unnecessary. In response, Grady Health System's (GHS) stewardship team along with clinical pharmacists implemented clinical decision support (CDS) panels in the electronic medical record (EMR) to assist providers in prescribing antibiotics known to be inappropriately prescribed in the outpatient setting.

METHODOLOGY: A retrospective chart review of GHS's EMR was utilized to compare patients from February 1, 2019-July 31, 2019 to patients from November 1, 2016-April 30, 2017 who received a prescription for oral ciprofloxacin, levofloxacin, or moxifloxacin from a GHS primary care or neighborhood clinic. Patients were included if they were at least 18 years old.

RESULTS: A total of 406 patients were included. Ciprofloxacin was the most frequently prescribed fluoroquinolone in both the before and after groups. Treatment was deemed inappropriate in 89.3% of patients that were prescribed fluoroquinolones prior to implementation of CDS panels compared to 46.8% after implementation of CDS panels. 80.6% of inappropriate prescriptions in the before group were due to inappropriate indication compared to 70.7% in the after group.

CONCLUSIONS: Implementation of CDS panels in the EMR reduced the proportion of inappropriate fluoroquinolones prescriptions at GHS primary care clinics.

Presenters: Hilary Smith

TITLE: Continuous epinephrine infusion compared to standard bolus dosing in advanced cardiac life support

AUTHORS: Hilary Smith, PharmD; Eric Shaw, PhD; Stephanie Lesslie, PharmD, BCPS, BCCCP

OBJECTIVE: To compare continuous epinephrine infusion to standard bolus dosing in advanced cardiac life support (ACLS).

SELF ASSESSMENT QUESTION: Is there a benefit to use continuous epinephrine infusion over standard bolus dosing during ACLS?

BACKGROUND: Epinephrine is the primary medication administered during advanced cardiac life support (ACLS). During ACLS, epinephrine is most commonly administered by a standard IV push dose of 1 mg every 3 to 5 minutes. Guidelines suggest that epinephrine infusion is a potential option that is comparable to push dose. There are theoretical benefits to administering epinephrine as a continuous infusion during ACLS like maintaining ROSC and blood pressure post cardiac arrest. At our institution, the use of continuous epinephrine infusion is commonly implemented at the provider's discretion. This will be the first study to our knowledge to evaluate the effectiveness of continuous epinephrine infusion to bolus dosing in cardiac resuscitation.

METHODOLOGY: This was a single center, observational, retrospective study. All adult patients that experienced a cardiac arrest and had complete code documentation that received either epinephrine continuous infusion or standard bolus dosing from January 1st, 2019 to December 31st, 2020 were included. The primary outcome was mortality at 24 hours after cardiac arrest. Secondary outcomes were any achievement of ROSC, ICU mortality, survival to hospital discharge with a favorable neurologic outcome (mRS of 3 or less), ICU length of stay, hospital length of stay, and need for renal replacement therapy.

RESULTS: A total of 176 patients were included (136 in continuous infusion group and 40 in bolus group). Mortality was 69% in the bolus group compared to 87.5% in the continuous infusion group, which was statistically significant ($p=0.021$). There were no statistically significant differences between groups in secondary outcomes.

CONCLUSIONS: Continuous epinephrine infusion in cardiac resuscitation was associated with higher mortality than the standard bolus dosing.

https://static.sched.com/hosted_files/2021southeasternresidency/b5/SERC%20Recording%20%281%29.mp4

Presenters: Taylor Miller

TITLE: Impact of Process Changes to Improve Timing of First Dose of Caffeine in Preterm Neonates

AUTHORS: Taylor Miller, Laura Hagan, Corinne Murphy

OBJECTIVE: Describe how stocking loading doses of caffeine in automated dispensing cabinets in the NICU impacted time to first dose of caffeine in preterm neonates.

SELF ASSESSMENT QUESTION: Does improving accessibility of caffeine improve time to first dose?

BACKGROUND: Preterm neonates are at risk for bronchopulmonary disease (BPD). Caffeine improves lung function by increasing central respiratory drive and diaphragmatic activity. Studies suggest caffeine administration within three days of life leads to improved outcomes and a reduction in BPD. The purpose of this quality improvement project was to assess if improving caffeine accessibility has an effect on timing of the first dose in preterm neonates.

METHODOLOGY: This was an IRB approved, retrospective chart review that compared time to first dose of caffeine pre- and post-implementation of a process change that moved to dispense initial doses of caffeine from automated dispensing cabinets in the NICU as opposed to dispensing from central pharmacy. This chart review was conducted from July 1, 2016 to February 28, 2021 and included neonates who received prophylactic caffeine. The primary outcome was to determine if improving accessibility of caffeine in the NICU improved time to first dose in preterm neonates. Neonates were included if they were born less than 29 weeks gestation and received prophylactic caffeine during their hospital stay. Neonates were excluded if they were transferred from another facility, experienced mortality within the first three days of life, or electronic medical records were inaccessible.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Hannah Gipson

OBJECTIVE: To discuss the implementation process of order set changes and compare patient outcomes after updating joint replacement surgical order sets at Huntsville Hospital.

SELF ASSESSMENT QUESTION: What steps can a pharmacist take in ensuring appropriate dosage of medications are used in surgical order sets?

BACKGROUND: A new surgeon was recently added to staff asking for changes to the current perioperative orders for managing patients undergoing total hip, shoulder, and knee joint replacement. The purpose of this study is to assess current joint replacement surgical order sets at Huntsville Hospital and develop new order sets based on literature while taking into consideration recommendations from arthroplasty surgeons, anesthesiologists, advanced practitioners, nurses, pharmacists, and hospital management.

METHODOLOGY: Requested changes were compared with the current order sets. Literature was reviewed prior to meeting with surgery staff to make recommendations on best practices between requested changes and the current order sets. An updated order set was created and reviewed by the surgery staff to agree on desired practice standards. Preliminary data was collected to perform a case-matched comparison between surgeons already practicing similar to the new order set to surgeons practicing similar to the current order set. Outcomes measured included TXA use, VTE management, multimodal pain control, length of stay, readmission rate, and straight catheter requirement.

RESULTS: An extensive literature review of 38 drug or fluids was performed. After measuring preliminary outcomes, current arthroplasty treatment practices appear similar to the new order set.

CONCLUSIONS: Multiple changes have been made in the new order set to help decrease length of stay and readmission rates. The order set is currently being updated and implemented in the electronic health record based on a joint consensus of team members. Education to staff will be provided once the new order set is ready in the electronic system.

Presenters: Madeline Volk

TITLE: Impact of medications for opioid use disorder in people who inject drugs with infections

AUTHORS: Madeline Volk, Michael Veve, Laurence Wright, Sam Yeager, Paul Miller, Mahmoud Shorman, Mark Rasnake, Paul Miller

OBJECTIVE: Identify the outcomes associated with medications for opioid use disorder (MOUD) in people who inject drugs (PWID) with infections

SELF ASSESSMENT QUESTION: Based on this study, which medications are associated with a reduction in leaving AMA and infection-related readmissions in PWID?

BACKGROUND: Infectious complications manifest in PWID, including skin and soft tissue infections, bacteremia, endocarditis, and osteomyelitis. Among PWID hospitalized with infections, high rates of leaving against medical advice (AMA) and subsequent readmissions are reported. The purpose of this study is to determine if outcomes in PWID with infections differ based on receipt of MOUD.

METHODOLOGY: This retrospective cohort study included adult patients hospitalized for infections related to injection drug use from 1/2017-1/2021. Patients were excluded for being on medications for analgesia only, injecting only non-opioid drugs, or being in law enforcement custody. The primary endpoint is a composite of 90-day infection-related hospital readmission and AMA discharge. Categorical variables were compared using the Pearson χ^2 or Fisher's exact test. Continuous variables were compared by the Student's t-test or Mann-Whitney U-test. Logistic regression will be utilized to account for potential confounders.

RESULTS: Among the patients included in this study, 50 received MOUD and 150 did not. The primary outcome occurred in 18 patients in the MOUD group and 85 patients in the non-MOUD group (36% vs. 56%, $p=0.014$).

Leaving AMA occurred in 12 patients in the MOUD group and 60 patients in the non-MOUD group (24% vs. 40%, $p=0.041$). Infection-related readmission occurred in 6 MOUD patients versus 49 non-MOUD patients (12% vs. 33%, $p=0.005$).

CONCLUSIONS: MOUD significantly reduced 90-day infection-related readmission and leaving AMA in PWID with infections.

https://static.sched.com/hosted_files/2021southeasternresidency/46/SERC_Volk.mp4

Presenters: Trinh Vu

TITLE: Pharmacist-Led Medication Histories Reduce Antiretroviral Medication Errors in Hospitalized Patients

AUTHORS: Trinh Vu, Mark Priddy, Zanthia Wiley, Jesse T. Jacob, K. Ashley Jones

OBJECTIVE: Evaluate the impact of medication histories conducted by pharmacists on medication discrepancies in hospitalized patients with HIV.

SELF ASSESSMENT QUESTION: What was the absolute reduction in overall medication error rates after the quality initiative?

BACKGROUND: Patients with human immunodeficiency virus (HIV) are at an increased risk for medication errors during hospitalization compared to those without HIV. Antiretroviral (ARV) medication errors can lead to adverse effects, resistance, and increased healthcare costs, making this an important target for patient safety and stewardship. We sought to evaluate the impact of medication histories conducted by pharmacists prior to ARV order verification on medication errors in this patient population.

METHODOLOGY: We conducted a quasi-experimental study evaluating a quality initiative that aimed to reduce ARV medication discrepancies in our urban academic medical center. Clinical pharmacists were provided structured education and a guide for obtaining accurate medication histories prior to order verification. We evaluated the rate of ARV medication discrepancies before (01/01/2018 – 12/31/2018) and after (01/01/2019 – 12/31/2019) implementation, including the type of discrepancies, discrepancies occurring upon initial order entry, after pharmacist verification, and on subsequent days after medication verification.

RESULTS: We randomly selected 400 patient encounters in the pre- and 400 patient encounters in the post-initiative group for inclusion. The medication error discrepancies were 39.8% and 25.5% ($p=0.0009$) in the pre- and post-initiative groups, respectively, resulting in an absolute reduction of 14.3%. Patients were less likely to have at least one medication error in the post-initiative group (20.0% vs. 37.0%, $p<0.0001$). The overall number of medication errors decreased across all error types during the post initiative period, with the largest impact on drug-drug interactions and drug omission.

CONCLUSION: A reduction in ARV medication errors was observed after implementation of the pharmacist-led ARV medication history quality initiative. Dedicated pharmacist training and management of ARVs can decrease the overall number of medication errors associated with HIV/AIDS.

https://youtu.be/_DCD9ONqeME

Presenters: Adrienne Bundrick

TITLE: Impact of Pharmacist Direct-Acting Oral Anticoagulant Monitoring in the Inpatient Setting

AUTHORS: Adrienne Bundrick, Alyson Burns, John Howard, Mary Blumer, Alex Ewing, Lindsay Reulbach

OBJECTIVE: To evaluate and assess pharmacist monitoring of DOAC agents during inpatient admissions as the new standard of care

SELF ASSESSMENT QUESTION: What outcomes do pharmacists improve through monitoring of DOAC anticoagulant therapy?

BACKGROUND: Optimal anticoagulant dosing is vital, as inappropriate regimens can contribute to morbidity and mortality. Pharmacist involvement in anticoagulation improves patient outcomes in both outpatient and inpatient settings. However, limited studies analyze pharmacist impact of inpatient DOAC monitoring. Recently, Prisma Health-Upstate implemented a standardized process for pharmacist DOAC monitoring. The purpose of this study is to determine the impact of pharmacist DOAC monitoring in the inpatient setting on the incidence of optimal dosing at discharge.

METHODOLOGY: This is a single-center, observational study comparing pre- and post- implementation of a pharmacist DOAC monitoring protocol during hospitalization. The primary outcome is change in incidence of optimal DOAC dose at discharge after implementation of pharmacist monitoring. Secondary outcomes include hospital length of stay, all-cause in-hospital mortality, readmissions, mortality, rates of optimal DOAC therapy, and rate of pharmacist intervention and physician response.

RESULTS: A total of 473 patients were included, with 227 in the pre-group and 246 in the post-group. There was no significant difference in the primary outcome of overall DOAC dose optimization at discharge, with 133/197 (67.51%) doses optimized in the pre-group and 160/220 (72.85%) doses optimized in the post-group, ($p=0.278$). There were significantly higher rates of documented pharmacist DOAC interventions ($p<0.001$) and DOAC doses optimized following provider acceptance of pharmacist intervention in the post- group ($p<0.001$).

CONCLUSIONS: There was no significant difference in overall DOAC dose optimization at discharge. However, this data supports the continued involvement of pharmacists in protocolized DOAC dose optimization.

<https://www.youtube.com/watch?v=IsLeoDIyoT4>

Presenters: Jonathan Mansfield

TITLE: Impact of a Rheumatology Population Management Tool on Clinical Pharmacy Specialist Workflow in a VA Medical Center

AUTHORS: Jon Mansfield, Lori Bennett

OBJECTIVE: Outline medication monitoring parameters for commonly prescribed immunomodulators

SELF ASSESSMENT QUESTION: Which of these medications requires routine monitoring of lipid panels?

BACKGROUND: Rheumatological conditions often require treatment with medications that are associated with significant toxicities and require close monitoring. Active review by a Clinical Pharmacy Specialist (CPS) ensures that patients prescribed these drugs receive guideline-recommended monitoring. At the Ralph H. Johnson VA, a rheumatology population management tool was implemented to enhance monitoring efficiency and streamline CPS workflow. The purpose of this study is to examine the impact of this tool.

METHODOLOGY: Patients were included if enrolled in the VA rheumatology clinic and receiving active treatment.

Health factors within note templates were used to track interventions made by the pharmacist. The primary outcome of this study is to describe the changes in interventions made by the rheumatology CPS after dashboard implementation. The secondary outcomes were to report the changes in number of lab orders by the CPS, progress notes written, and scheduled appointments per day. The safety outcome was to compare emergency department visits before and after dashboard implementation for the patient panel.

RESULTS: There were 992 total interventions in the post-dashboard cohort and 788 in the pre-dashboard cohort. The total number of lab orders placed by the CPS was reduced by approximately five percent. Progress notes written increased by 10 percent, likely due to implementation of a new note template. Average number of appointments scheduled in the clinic was reduced by over 50 percent. There were 108 total ED visits by the patient panel, but only two were related to a medication of interest. Both of these visits were in the pre-dashboard cohort.

CONCLUSIONS: A population management tool implemented into a rheumatology clinic can serve to reduce lab orders, enhance clinic flexibility, and uphold quality of care standards.

LINK: <https://youtu.be/oOscYX3WEHQ>

Presenters: Daniel Schrum

TITLE: Effect of High Cost Medications on Outcomes for Cancer Patients

AUTHORS: Daniel P. Schrum, Meredith T. Moorman, Sally Barbour

OBJECTIVE: Describe the impact of high-cost chemotherapeutic medications on monetary and clinical outcomes.

SELF ASSESSMENT QUESTION: Which of these is true: A.High-cost medications at the end of life have been linked with increased costs with minimal clinical benefit B.Palliative care consultation rates are low even though it has been linked with increased quality of life C.Cost is always correlated with efficacy in terms of chemotherapeutic medications D.A/C E.A/B F.All of the above

BACKGROUND: The prescribing of high-cost cancer medications has been met with increased criticism during recent years, especially in end of life scenarios due to increased cost and limited clinical efficacy. Currently at Duke University Hospital, inpatient use of high-cost medications, many of which are oncology medications, requires an approval process called second level review. This study seeks to quantify clinical and cost outcomes related to second level medications.

METHODOLOGY: This single center retrospective review was conducted at Duke University Hospital (DUH). Second level approval requests from 05/01/2017-04/30/2020 for oncology patients were reviewed. The primary endpoint was survival at 3 months post-initiation. Secondary endpoints included survival at 6 months, palliative care consultation rates and medication-related costs. The primary analysis was conducted on all patients included in the study using descriptive statistics.

RESULTS: A total of 98 patients were included in the analysis. The proportion of patients surviving at 3 months post-initiation was 71%. Survival at 6 months post-initiation was 61%. Palliative care consults or documented goals of care discussions were only accounted for in 40% of cases. The ratio of cost of pharmacy services billed to the patient's insurance compared to GPO cost was 4.8:1.

CONCLUSIONS: The study indicated high rates of patient survival post-discharge, though palliative care consultation rates were relatively low. Medication costs were high for both the patients and the institution.

https://duke.zoom.us/rec/share/WZEKLD1lxT1iDx5ntUBsTtJw5B7H4S4UpX4jR_LvAs-9BOSgdXBLy5V309uVnQ0P.OeKsC0PoWDR5lfgN?startTime=1618856997000

Presenters: Amanda (Mandie) Palcic

TITLE: Evaluation of Outcomes Following Conversion from Other Glucagon-Like-Peptide-1 Receptor Agonists (GLP-1 RAs) to Semaglutide in a VA Health Care System (VAHCS)

AUTHORS: Amanda Palcic, Rebecca Edwards and Camille Robinette

OBJECTIVE: Identify the incidence of diabetic retinopathy (DR) progression or associated complications in Veterans converted from other GLP-1 RAs to semaglutide

SELF ASSESSMENT QUESTION: Was DR progression seen in Veterans who were converted from other GLP-1 RAs to semaglutide?

BACKGROUND: Semaglutide became the preferred GLP-1 RA for the Salisbury VA Health Care System (SVAHCS) in 2018 but has been associated with DR complications. The purpose of this review was to evaluate the Veteran population in the SVAHCS and determine DR progression or other ophthalmic complications after conversion from other GLP-1 RAs to semaglutide.

METHODOLOGY: This was a retrospective quality improvement project. Eligible subjects included in this study were Veterans with a history of diabetic retinopathy converted from other GLP-1 RAs to semaglutide by a SVAHCS healthcare provider from October 1, 2018 to June 30th, 2019. The primary objective was to identify and evaluate progression of DR in Veterans converted to semaglutide. Secondary objectives included identifying the change in A1c and BMI in Veterans before and after semaglutide conversion, assessing the conversion dose of semaglutide, and determining the number of Veterans who discontinued semaglutide post-conversion and the rationale behind their discontinuation.

RESULTS: Of the 28 Veterans included, four Veterans experienced progression of their DR. One Veteran with DR progression experienced a complication. There were minimal differences in A1c and BMI pre- and post-conversion. Half of the Veterans were converted to semaglutide 0.5mg. Five Veterans discontinued semaglutide within 1 year of conversion, either due to gastrointestinal reasons or itching. Similar discontinuation rates for those re-titrated up from 0.25mg and those started at 0.5mg.

CONCLUSIONS: Most Veterans with a history of DR converted to semaglutide did not experience progression or complications of their DR. There was no difference in the number of Veterans who discontinued the medication based on whether they were re-titrated.

LINK: <https://youtu.be/uc0GuqdG-zA>

B IMPACT OF CLINICAL PHARMACY SPECIALISTS' INTERVENTIONS ON 30-DAY CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) READMISSION RATES IN A VETERAN POPULATION

Presenters: Jonathan Ennis

IMPACT OF CLINICAL PHARMACY SPECIALISTS' INTERVENTIONS ON 30-DAY CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) READMISSION RATES IN A VETERAN POPULATION

Authors: Jonathan S Ennis, Mary K Hall, Mary M McGill, Bridget G. Roop
Birmingham VA Health Care System - Birmingham, AL

Background/Purpose: Assess the impact of clinical pharmacy specialists' interventions on COPD 30-day readmission rates and improvements in symptom control in a veteran population.

Methodology: Eligible participants were those admitted and treated for a COPD exacerbation from 12/01/2020 to 02/28/2021. Patients were identified through both primary admission diagnosis and a COPD dashboard for exacerbations. Eligible patients were contacted via telephone after discharge by a pharmacy resident to assess symptom improvement, offer disease state counseling, and ensure appropriate inhaler compliance and technique. Issues that were identified were documented as recommendations for follow up. Follow up was offered to each participant with a clinical pharmacy specialist for medication management.

Results: Thirteen patients were included in this Quality Improvement project. Mean contact time post-discharge was 8 days. All patients included had educational interventions made that included information on proper use, dose, directions, administration, and adherence of inhaler devices for COPD. Nine patients were able to follow up with a clinical pharmacy specialist after discharge. Medication management interventions included refills, therapy additions, and adjustments of medications. We observed one COPD readmission within 30 days (1/13, 7.7%) and two additional COPD readmissions within 60 days (2/13, 15.4%). Three patients continued to follow up with the clinical pharmacy specialist and six patients were referred to pulmonology for outpatient follow up. Efforts to compare readmission rates from a previous quarter were unsuccessful due to unforeseen discrepancies in numbers that we could not attribute to our interventions alone.

Conclusions: Observations included significant patient unfamiliarity with COPD, inhaler administration, and adherence. Due to this, there may be further opportunity for pharmacists to provide education and ease transitions of care after patients are hospitalized for COPD exacerbations. Coordination between inpatient and outpatient services might be beneficial to ensure proper transitions of care for COPD patients. A structured follow-up process and longer service implementation would help fully evaluate the benefit and cost-effectiveness of this service.

Presentation Objective: Discuss educational and medication management interventions made through a pharmacy run COPD clinic for patients recently discharged for a primary COPD exacerbation.

Self Assessment: How can clinical pharmacists intervene and provide benefit in the care of patients with poorly managed COPD?

<https://vimeo.com/539280188>

Presenters: Tiera Williams

TITLE: Identifying Barriers to Under-vaccination in Community-Based Specialty Pharmacy

AUTHORS: Tiera Williams, Jennifer Elliot, Paige Brockington

OBJECTIVE: The objective of this research project is to identify barriers influencing under-vaccinated populations within the Walgreens Community-Based Specialty pharmacies in the metro Atlanta.

SELF ASSESSMENT QUESTION: What is one area of community pharmacy where pharmacists can effect patient willingness to accept vaccines?

BACKGROUND: Under vaccination can lead to the spread of communicable diseases and increase risk of morbidity and mortality in patients with chronic health conditions. Reasons for under-vaccination includes vaccine hesitancy, lack of awareness of the value of vaccines, and limited access to healthcare. Studies have shown that patient education and engagement strategies can increase vaccine uptake in at-risk patient populations. A large part of vaccine hesitancy is related to the lack of education and patient-outreach programs have proven to be a successful strategy in addressing this barrier and increasing vaccine uptake in high-risk patient populations.

METHODOLOGY: A telephone survey was used to collect patient demographics, identify possible sources of social detriments, barriers affecting willingness to receive flu vaccination, healthcare provider involvement in vaccine education, patient preference in receiving educational materials and current vaccination status. The study population consists of patients of Walgreens Community-Based Specialty pharmacies in the Metro Atlanta area, who receive routine refill and reassessment calls. Patients receiving a Limited Distribution Drug or specialty medication were contacted for initial therapy, reassessment or refill task calls and asked to participate in a survey following the call. Patients were identified for survey completion using home zip code as inclusion criteria. A statewide immunization registry, GRITS was used to verify immunization status or determine what vaccinations opportunities were available. Population demographics, including race, education level and income was obtained using Wolfram Alpha Computational Intelligence to evaluate community census information. Census data was then compared to survey data in an attempt to identify underrepresented populations who may be at risk for under-vaccination

RESULTS: This study is ongoing. To date, twelve patients meeting criteria were identified and assessed for barriers to vaccine uptake. Nine patients (75%) identified as Black/African American, representing a majority of patients surveyed. Six of the total patients surveyed (50%) reported not receiving the 2020-2021 flu vaccine. Three of the six unvaccinated patients (50%) reported lack of knowledge and distrust in the healthcare system as a barrier effecting their willingness to accept vaccines. Lack of recommendation and fear of adverse effects were both reported by two patients who also did not receive the 2020-2021 flu vaccine (33%).

CONCLUSIONS: We observed that lack of vaccine recommendations and limited patient knowledge regarding vaccines are the most apparent barriers to vaccine uptake. The pharmacist can play a continued role in increasing vaccine uptake by providing recommendations based on guideline schedules and thorough counseling regarding the benefit of vaccine uptake for patients at the point of care. In the future, this study can be used to identify personalized outreach programs for sub populations identified as under vaccinated with the goal of increasing vaccine uptake and long-term healthcare outcomes.

Presenters: Ashley Kamp

TITLE: Comparison of Intermittent Versus Continuous Infusion Antihypertensives in Ischemic Stroke

AUTHORS: Ashley Kamp, Wennie Huang, Timothy Lassiter, Shreyansh Shah, Beiyu Liu, Bridgette Kram

OBJECTIVE: Describe the effects of intermittent and continuous infusion antihypertensives on BP reduction and the time to alteplase administration in patients with acute ischemic stroke

BACKGROUND: Rapid control of elevated blood pressure (BP) is critical in the management of acute ischemic stroke. Consensus guidelines recommend a BP target <185/110 mmHg for patients eligible to receive thrombolytic therapy with intravenous alteplase. However, the optimal approach to BP management in acute ischemic stroke remains unclear.

METHODS: Patients ≥ 18 years admitted to the emergency department (ED) between September 1, 2013 and August 31, 2020 who received alteplase for acute ischemic stroke and required BP management with an intravenous antihypertensive were included in this multicenter, retrospective cohort study. Specific antihypertensives evaluated in this study included intermittent labetalol and hydralazine and continuous infusion nicardipine and clevidipine. Exclusion criteria were initial administration of a non-study antihypertensive, initial study antihypertensive administration following alteplase, administration of labetalol as a continuous infusion, or receipt of both an intermittent and continuous infusion antihypertensive prior to alteplase. The primary endpoint was the time from ED presentation to alteplase administration.

RESULTS: A total of 179 patients were included. Of these patients, 122 received an intermittent antihypertensive and 57 patients received a continuous infusion antihypertensive. The "door-to-needle" time was 53 minutes for patients who received an intermittent antihypertensive compared to 57 minutes for those who received a continuous infusion antihypertensive ($p=0.17$). The proportion of patients who achieved the BP target within 15 minutes of initial antihypertensive administration and the time from initial antihypertensive administration until the BP target was achieved were similar between treatment groups. In regard to safety, a greater proportion of patients in the continuous infusion antihypertensive group experienced hypotension, but there was no difference in the incidence of hemorrhagic conversion.

CONCLUSIONS: Intermittent antihypertensives appear to be comparably safe and effective to continuous infusion antihypertensives in patients with acute ischemic stroke and are less expensive.

SELF-ASSESSMENT QUESTION: True or False? Faster BP control has been identified as a potential strategy to reduce "door-to-needle" time, which is clinically relevant given the time-dependent benefits of alteplase on neurologic recovery.

LINK TO PRESENTATION: <https://www.youtube.com/watch?v=Ti9SCv6ERrM>

Presenters: Nisha Patel

TITLE: Low Dose Ketamine Use in the Emergency Department for Acute Pain Management

AUTHORS: Nisha Patel, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: List characteristics associated with a positive clinical response to LDK.

SELF ASSESSMENT QUESTION: Which of the following is an ideal candidate for LDK?

BACKGROUND: Opioid misuse in the United States remains a major issue causing thousands of deaths. Finding viable non-opioid alternatives for pain management is pertinent. Low dose ketamine (LDK) has been studied for its use as an analgesic in acute pain management in the emergency department (ED). Evaluating patients for a positive clinical response to LDK could help standardize the patient population that receives LDK in the ED at our institution. The objective of this study is to describe the use of ketamine as an analgesic in the ED-at our institution.

METHODOLOGY: A retrospective chart review was conducted for patients ≥ 18 years of age who received at least one dose of ketamine for an acute pain episode in the ED from January 2018 to December 2019. The primary endpoint was the amount of morphine milligram equivalents (MME) of opioids used with LDK. Univariate and multivariate logistic regression was used to determine characteristics associated with a positive clinical response to LDK (defined as a reduction in pain scores from baseline to second pain score within 60 minutes with absence of major adverse effects).

RESULTS: A total of 100 patients were included in this study. The median MME of opioids used with LDK was 5. There were 62% of patients with a positive clinical response to LDK and 4% experienced a major adverse event. Characteristics associated with a positive clinical response were weight < 85 kg ($p=0.018$) and administration of a subsequent dose ($p=0.012$).

CONCLUSIONS: In patients with an acute pain episode, MME of opioids used with LDK was low. Overall, LDK is safe and effective for use at 0.3 mg/kg in patients with an acute pain episode.

Videostream: <https://youtu.be/apWZlwapwUk>

Presenters: Audrey Wenski

TITLE: The impact of heparin initiation boluses on achieving targeted activated partial thromboplastin time (aPTT)

AUTHORS: Audrey Wenski, Chad Alligood

OBJECTIVE: Evaluate if heparin bolus infusions increase frequency of therapeutic aPTT levels within 24 hours.

SELF ASSESSMENT QUESTION: Do heparin boluses increase the probability of achieving targeted aPTT levels within 24 hours?

BACKGROUND: Patients with deep vein thrombosis (DVT), pulmonary embolisms (PE) or acute coronary syndrome (ACS) face higher mortality and rates of clot recurrence if left untreated. Anticoagulation reduces the risk of mortality. Current prescribing practices at Vidant Medical Center include frequently omitting heparin initiation boluses doses prior to continuous infusions. The purpose of this study was to evaluate the use of heparin boluses at a large academic medical center and determine if patients reached targeted aPTT levels more quickly when an initiation bolus was administered or if started on a maintenance infusion alone.

METHODOLOGY: This single center, retrospective review included adult patients who had received heparin infusions for DVT/PE or ACS from October 2019 to December 2019. Patients were excluded if they had an indication for heparin infusion other than DVT/PE or ACS, if appropriate laboratory data was not collected, or if patients had received alteplase therapy within 24 hours of heparin initiation. Data was obtained through electronic health record reports and the evaluation of patient medical records.

RESULTS & CONCLUSIONS: Time to targeted PTT within the first 24 hours was approximately 2 hours shorter for patients who did NOT receive an initiation bolus, although this may not be clinically significant. The Bolus group was more likely to be supratherapeutic at first PTT check and at 24 hours. Additionally, something to consider in the future would be alternative bolus dosing strategies in patients eligible for a bolus, particularly in those being treated for DVT/PE.

LINK TO PRESENTATION: <https://youtu.be/rhiC4DJ9qWQ>

I Predicted benefits of a 14-pathogen polymerase chain reaction assay compared to a standard diagnostic cascade of community acquired meningitis in a community health system

Presenters: Samantha Mayes

TITLE: Predicted benefits of a 14-pathogen polymerase chain reaction assay compared to a standard diagnostic cascade of community acquired meningitis in a community health system

AUTHORS: Samantha N. Mayes; Molly H. Thompson, Jacquelyn Bryant, Molly H. Bennett

OBJECTIVE: Identify opportunities for expedited diagnosis, definitive antimicrobial therapy, and reduced financial burden with meningitis/encephalitis (ME) PCR Panel implementation.

SELF ASSESSMENT QUESTION: What is one potential benefit of employing a meningitis/encephalitis PCR assay at a community hospital?

BACKGROUND: Meningitis and encephalitis are serious central nervous system infections caused by bacteria, viruses, or fungi. Rapid pathogen identification and definitive therapy reduces morbidity and mortality. Current diagnostic cascade involves provider-directed combination of on-site and send-out microbiologic cultures and polymerase chain reactions (PCRs). A PCR panel testing for 14 common meningitis/encephalitis pathogens, requiring 200 µl of cerebrospinal fluid (CSF) resulting in 1-2 hours is commercially available.

METHODOLOGY: This study was an IRB exempt, retrospective chart review of adult and pediatric patients with suspected ME and a CSF culture who were admitted to or received emergency department care at a multi-site community health system between June 2019 and December 2019. Data collected included demographic data, differential diagnoses, microbiologic tests, antimicrobial therapy and final diagnoses. Descriptive statistics were employed to analyze patient demographics and predicted outcomes. Primary outcome was a composite of potential benefit with the implementation of an ME PCR assay including reduction in time to definitive diagnosis, antimicrobial days of therapy and/or microbiologic testing.

RESULTS: 52 of 165 patients screened met inclusion criteria. Of those, 30 (57.7%) patients demonstrated opportunity for optimized care with implementation of ME PCR assay. 7 patients (23.3%) displayed opportunities for expedited positive pathogen identification. 17 patients (56.7%) would have had a final negative result within hours if ME PCR assay was employed, potentially eliminating up to 5 days of empiric therapy. There were opportunities for reduced anti-infective usage in 23 patients (76.7%) avoiding up to 2.25 antimicrobial therapy days.

CONCLUSIONS: Implementation of a ME PCR assay may expedite diagnosis, decrease time to definitive antimicrobial therapy, and reduce financial burden of meningitis/encephalitis to patients and health systems.

[Link to Presentation](#)

I Symptom Free Pee, Let It Be: Effect of a Microbiology Comment Nudge on Asymptomatic Bacteriuria Room I

Presenters: Madeline Belk

TITLE: Symptom Free Pee, Let It Be: Effect of a Microbiology Comment Nudge on Asymptomatic Bacteriuria

AUTHORS: Madeline Belk, Taylor Steuber, Jonathan Edwards

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe how to create and implement a microbiology comment nudge as a means of reducing the inappropriate treatment of asymptomatic bacteriuria.

SELF ASSESSMENT QUESTION: When would you expect to see a microbiology comment nudge on a urine culture?
 a. A culture growing > 100,000 CFU of bacteria
 b. A culture growing < 100,000 CFU of bacteria
 c. A culture growing mixed urogenital flora
 d. A culture with no growth of bacteria

BACKGROUND: The presence of bacteria in the urine without symptoms of a urinary tract infection (UTI) is known as asymptomatic bacteriuria (ASB). It occurs in many patient populations, such as healthy female patients, and treatment is not warranted majority of the time per national guidelines. However, ASB is oftentimes treated and may lead to downstream consequences like antibiotic resistance and adverse drug events. In an effort to minimize treatment of ASB, the microbiology department and Antimicrobial Management Team (AMT) created a microbiology comment to prompt providers to assess for ASB in patients with positive urine cultures receiving antibiotics.

METHODOLOGY: This single-center, quasi-experimental study evaluated adult patients admitted to the hospital with a positive urine culture who received antibiotic treatment in the absence of signs and symptoms of a UTI. The primary endpoint assessed treatment of ASB with antibiotics before and after implementation of the microbiology comment on urine cultures. Data was analyzed from March 1, 2020-March 31, 2020 for the pre-intervention group and from March 1, 2021-March 31, 2021 for the post-intervention group. Education was provided through a recorded video and knowledge assessed by a pre-post survey. A chi-square test of independence was used to analyze the primary endpoint. Secondary endpoints compared antibiotics administered, duration of antibiotic therapy, and length of stay between groups.

RESULTS: 472 patients were screened, 34 patients were included in the pre-implementation group and 28 patients in the post-implementation group. Preliminary results show similar treatment rates of ASB between groups (22/34 (64.7%) vs 17/28 (60.7%), $p=0.796$). Patients in the post-implementation group showed a trend towards increased discontinuation of antibiotics after culture resulted (0% vs 27.8%, $p<0.05$), a reduction in antibiotics prescribed at discharge (32.4% vs 10.7%, $p=0.066$), and an improvement in symptom documentation (8.8% vs. 28.6%, $p=0.053$). Median days of therapy were similar between groups (6 (5, 8.5) vs 6 (3,8), $p=0.060$).

CONCLUSIONS: Preliminary results show that implementation of a microbiology comment nudge on urine cultures may improve the discontinuation of antibiotics after culture resulted, antibiotics prescribed at discharge, duration of therapy, and symptom documentation in the electronic health record.

L Impact of Pharmacist Involvement by Utilizing the 4Ts Score in the Clinical Assessment for Heparin-Induced Thrombocytopenia

Room E

Presenters: Robin Lonscak

TITLE: Impact of Pharmacist Involvement by Utilizing the 4Ts Score in the Clinical Assessment for Heparin-Induced Thrombocytopenia

AUTHORS: Robin C. Lonscak, Scott Camp, Thu-Kim Phan, Kerry Ward, Amanda Stankowitz

OBJECTIVE: Describe the potential impact of pharmacist intervention on laboratory testing for heparin-induced thrombocytopenia (HIT) by utilizing the 4Ts score.

SELF ASSESSMENT QUESTION: True or False? Pharmacists can utilize the 4Ts score to identify patients at low risk for HIT.

BACKGROUND: The 4Ts score is a validated clinical tool used to screen patients with suspicion of HIT. A low 4Ts score indicates a very low probability of HIT with a 99.8% negative predictive value. Testing is not recommended in patients with a low 4Ts score. The purpose of this project was to determine the clinical and financial impact of pharmacist involvement in utilizing the 4Ts score for HIT.

METHODOLOGY: Adult patients who received a platelet-factor 4 enzyme-linked immunosorbent assay (PF4-ELISA) from January 1, 2019 through December 31, 2019 were included. Patients with no documented heparin use or previous exposure to heparin were excluded. Chart review was conducted to calculate the 4Ts score for each patient utilizing data available at the time the ELISA was ordered. The primary outcome was the number of PF4-ELISA tests ordered in patients with low 4Ts scores. The secondary outcome was the potential cost-savings of pharmacist involvement by utilizing the 4Ts score prior to ordering PF4-ELISA tests.

RESULTS: Of the 340 patients receiving PF4-ELISA tests during the study period, 315 met inclusion criteria. There were 153 PF4-ELISA tests ordered for patients with a low 4Ts score and 163 for patients with an intermediate to high score. With a cost of \$221.40 per PF4-ELISA, pharmacist intervention could have saved \$33,874.20 in unnecessary testing expenses.

CONCLUSIONS: Pharmacist intervention utilizing the 4Ts score can prevent unnecessary laboratory testing and excess costs in patients with suspected HIT.

PRESENTATION LINK: https://youtu.be/UOK_-7DA6TQ

O ASSESSING THE IMPACT OF ONCOLOGY CLINICAL PHARMACY SERVICES ON CARBOPLATIN DOSING

Room A

Presenters: Justin Gruca

TITLE: Assessing the Impact of Oncology Clinical Pharmacy Services on Carboplatin Dosing

AUTHORS: Justin Gruca, Laura Beth Parsons, Danielle Dauchot, Belinda Li, Darby Siler, Rachel Matthews, Meredith McKean

OBJECTIVE: Define the Calvert formula and identify the minimum SCr value recommended by NCCN recommendations

SELF ASSESSMENT QUESTION: Per the NCCN recommendations: what should be the maximum creatine clearance value used in the Calvert formula? a)90 mL/min b)100 mL/min c)125 mL/min d)150 mL/min

BACKGROUND: The Gynecologic Oncology Group (GOG) and National Comprehensive Cancer Network (NCCN) have published recommendations to optimize carboplatin dosing. These guidelines specifically address weight (e.g., ideal vs. adjusted), minimum serum creatinine (SCr) values, and dose caps when using the Calvert formula.

Overdosing carboplatin can lead to toxicity, while under dosing can lead to inadequate treatment. Pharmacists can play a vital role in optimizing chemotherapy dosing. This study assesses the role of a medical oncology pharmacy specialist in carboplatin dosing

METHODOLOGY: This study was an IRB approved, single-center, retrospective study comparing the accuracy of carboplatin dosing with or without a medical oncology pharmacy specialist. This was divided into two cohorts: the pre-specialist cohort from December 1, 2015 and November 30, 2017 and post-specialist cohort from August 1, 2018 and July 31, 2020. Adult subjects were included if they were admitted and received at least one dose of carboplatin under the medical oncology or gynecologic-oncology service lines. Subjects were excluded if they were treated by a different service line or in the outpatient clinic. The primary objective was to assess whether the ordered carboplatin dose was within 5% of the calculated carboplatin dose following NCCN recommendations. Data was collected via electronic and paper medical records

RESULTS: To be presented

CONCLUSIONS: To be presented

Presentation Link: <https://youtu.be/M7SS6BwLwKU>

1 Incidence and Risk factors Associated with Antidepressant and Anxiolytic Use Following Kidney Transplant

Room F

Presenters: Aubrey Slaughter

TITLE: Incidence and Risk factors Associated with Antidepressant and Anxiolytic Use Following Kidney Transplant

AUTHORS: Aubrey Slaughter, Melissa Laub, Rachel Stephens, Joshua Clifton, Rajan Kapoor

OBJECTIVE: At the conclusion of my presentation, the participant will be able to assess the incidence of and risk factors associated with antidepressant and anxiolytic change after kidney transplant.

SELF ASSESSMENT QUESTION: What risk factors influenced an antidepressant and anxiolytic change after kidney transplant?

BACKGROUND: Psychosocial challenges are not uncommon after solid organ transplant. 50% of patients experience at least one episode of significant depression or anxiety within the first two years after transplant. Depressive and anxiety symptoms have an increased risk for negative outcomes, medication non-adherence, and higher rates of graft failure and/or mortality. Little evidence exists on the incidence of depression and anxiety post-transplant and the percent of patients taking medications for these indications. This study aims to determine the incidence of antidepressant and anxiolytic change within the first two years after kidney transplant.

METHODOLOGY: This is a single-site, retrospective chart review of patients age 18 years or older who received a kidney transplant at AU Medical Center between December 31, 2014 and December 31, 2017. Primary outcome is incidence of antidepressant and anxiolytic change within the first two years after transplant. Statistical methodology includes descriptive statistics for patient demographics and logistic regression to examine potential risk factors.

RESULTS: Of the 185 patients analyzed, 26 (14.1%) patients experienced a change in an antidepressant and/or anxiolytic within two years after their kidney transplantation. Risk factors associated with antidepressant change are female sex (OR 4.58, $p<0.05$) and number of readmissions (OR 1.23, $p<0.05$). Age was associated with an anxiolytic change (OR 0.97, $p<0.05$).

CONCLUSIONS: Antidepressant and/or anxiolytic change within the first two years after transplantation occurred in over 10% of the patients; however, further studies need to evaluate potential risk factors associated with these changes.

Link to presentation: <https://youtu.be/XG373nSORrA>**B Evaluation of Pharmacist Impact on Use of Guideline Recommended Antidiabetic Therapies for Cardiovascular Risk Reduction in a High-Risk Patient Population**

Room K

Presenters: Matthew Holt

TITLE: Evaluation of Pharmacist Impact on Use of Guideline Recommended Antidiabetic Therapies for Cardiovascular Risk Reduction in a High-Risk Patient Population

AUTHORS: Matthew L. Holt, Jamie Crossman

OBJECTIVE: Discuss evidence regarding the benefits of GLP-1 receptor antagonists and SGLT2 inhibitors in patients with T2DM and ASCVD or risk factors for ASCVD.

SELF ASSESSMENT QUESTION: How does clinical pharmacist intervention affect prescribing of GLP-1 receptor antagonists and SGLT2 inhibitors in a patient population that has T2DM and significant cardiac risk?

BACKGROUND: Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of mortality in patients with type 2 diabetes mellitus (T2DM). SGLT2 inhibitors and GLP-1 agonists reduce the incidence of cardiac events, and guidelines recommend these agents be included in the current standard of care for patients with T2DM and ASCVD or risk factors for ASCVD. The purpose of this study is to evaluate the impact of a pharmacist on use of SGLT2 inhibitors and GLP-1 antagonists in patients with T2DM and ASCVD or with risk factors for ASCVD in our clinic.

METHODOLOGY: An IRB approved chart review of patients of a local clinic with T2DM and ASCVD or risk factors for ASCVD was conducted. Pharmacist intervention began with dissemination of education regarding available SGLT2 inhibitors and GLP-1 agonists, their respective Georgia Medicaid preferred status, and pertinent cardiovascular data. Patients' charts were screened to determine if they were candidates for an SGLT2 inhibitor or GLP-1 agonist. The patients' providers were notified if the patients were deemed candidates for an SGLT2 inhibitor or GLP-1 agonist via an electronic message. The primary outcome was change in patients having an SGLT2 inhibitor or GLP-1 antagonist included on their medication list after pharmacist intervention. Secondary outcomes included difference in prescribing at baseline between patients referred to a pharmacist for diabetes management and those who had not, percentage of providers who expressed significant barriers to prescribing SGLT2 inhibitors and GLP-1 receptor antagonists, and overall successful interventions to reduce cardiac risk.

RESULTS: In progress

CONCLUSIONS: In progress

B Pharmacist Outreach to Improve Appropriate Glucagon Prescribing in Diabetes Patients Being Treated with Rapid-Acting Insulin Room J

Presenters: Nakiya Whitfield

TITLE: Pharmacist Outreach to Improve Appropriate Glucagon Prescribing in Diabetes Patients Being Treated with Rapid-Acting Insulin

AUTHORS: Nakiya T. Whitfield; Ben Smith; Patrick Gregory; Susan Spratt; Beiyu Liu

OBJECTIVE: The primary objective was to compare the rate of glucagon prescribing between the Pharmacist Intervention and the Control group in the one month period following pharmacist-led provider outreach. The second objective was to examine prescribing patterns of glucagon, previous episodes of hypoglycemia, and to identify Type 1 patients with diabetes not under the care of an Endocrinologist.

SELF ASSESSMENT QUESTION: This study illustrated an increase in appropriate glucagon prescribing in the 1-month period following pharmacist outreach. True or False

BACKGROUND: Hypoglycemia is a common complication of type 1 and type 2 diabetes mellitus, and is a major limiting factor in the glycemic management of diabetes. Generally, patients using antidiabetic medications such as insulin or certain oral hypoglycemic agents are at increased risk for hypoglycemia. Additional risk factors for hypoglycemia include tight glycemic control, changes in diet or physical activity, renal disease, as well as extremes of age such as young children or older adults. If not recognized and acted upon, hypoglycemia can cause acute harm to those with diabetes or unintentionally others, especially if it causes accidents or other injuries. The American Diabetes Association (ADA) recommends glucagon to be prescribed for all individuals at increased risk of clinically significant hypoglycemia, particularly level 2 hypoglycemia, defined as blood glucose < 54 mg/dL.

Glucagon emergency injection kits are a resource used to manage hypoglycemia in the outpatient setting, and are carried by many emergency medical service providers, patients, family members, and other non-medical personnel. Due to the effectiveness and availability, glucagon emergency kits have been shown to reduce emergency department visits, and overall health care cost in addition to providing peace of mind to patients and caregivers. Despite these known benefits, glucagon continues to be under-prescribed. Although the exact cause is unknown, it is thought that glucagon under-use could be attributed to inadequate education of health care providers, patients, and caregivers. METHODOLOGY: This project was a prospective, double-arm, pre-post interventional study. Patients with a primary care provider (PCP) who are eligible for Duke Population Health Management Office (PHMO) services were initially identified. From this, the Duke PHMO analytics team then created a report which identified patients who were prescribed a rapid acting insulin and were not prescribed glucagon at baseline as potential subjects for this study. Patients were included in the study if they were prescribed a rapid acting insulin (insulin analogs, regular insulin AND mixes) and if they were ≥ 18 years of age. Patients were excluded from the study if they were deceased, under hospice care, had a documented allergy or hypersensitivity to glucagon, or if the patient was hospitalized at the time of outreach for any other condition other than hypoglycemia.

All eligible patients with an upcoming PCP or Endocrinology appointment between October 1st, 2020 and January 31st, 2021 were randomized into two groups: (1) Pharmacist intervention, and (2) No Pharmacist intervention. For both intervention and control groups, the pharmacist would review the chart before the appointment to confirm that the patient would be an appropriate glucagon candidate. The pharmacist intervention consisted of a communication encounter to the PCP or Endocrinologist to consider the addition of glucagon emergency kit through the electronic health record. An order for the glucagon emergency kit was also pended and routed to the provider along with the recommendation. This message was sent approximately two to five business days prior to an upcoming appointment. If requested by the provider, a pharmacist would also outreach to the patient to provide education on glucagon. Patients in the control group did not receive pharmacist intervention. One month after the scheduled appointment, follow up on the resulting glucagon prescription rates was documented and compared between groups.

RESULTS: Upon pharmacist outreach, 61 of 109 patients (56.0%) in the intervention group were prescribed a glucagon product within one month of their PCP or Endocrinology appointment. This was statistically significant (p-value <0.001) when compared to the glucagon prescribing rate within the control group, which had 1 in 113 patients (0.9%) prescribed a glucagon product within one month of their PCP or Endocrinology appointment

CONCLUSIONS: Pharmacist-led provider outreach prior to a PCP or Endocrinology appointment has a positive and significant impact on glucagon prescribing rates when comparing intervention and control groups.

YOUTUBE LINK: <https://youtu.be/LUXJxUWDi5Y>

C Dobutamine versus Milrinone in the Treatment of Cardiogenic Shock and/or Acute Decompensated Heart Failure

Room D

Presenters: Megan Morrow

TITLE: Dobutamine versus Milrinone in the Treatment of Cardiogenic Shock and/or Acute Decompensated Heart Failure

AUTHORS: Megan Morrow, Naadede Badger-Plange, Leah Cochran, Hanna Park, Disa Patel, Abigail Shell

OBJECTIVE: Determine if outcomes in patients with acute decompensated heart failure (ADHF) or cardiogenic shock (CGS) differ based on the inotropic agent administered.

SELF ASSESSMENT QUESTION: Are there differences between outcomes in patients with ADHF and/or CGS who were treated with dobutamine or milrinone?

BACKGROUND: Dobutamine and milrinone are routinely used in critically ill patients when treating low cardiac output states. However, primary literature comparing the two inotropes is sparse and inconclusive. The purpose of this study is to evaluate outcomes in patients with ADHF and/or CGS who were treated with dobutamine or milrinone.

METHODOLOGY: Adults admitted to Piedmont Atlanta Hospital's intensive care unit (ICU) with ADHF and/or CGS from January 2019-December 2020 who received either dobutamine or milrinone were randomly selected and evaluated via retrospective chart review. Thirty-eight patients were included in this study, nineteen in each group.

Exclusion criteria included patients on home dobutamine or milrinone, awaiting cardiac transplant, or receiving both inotropes during hospitalization. The primary endpoint was the requirement of advanced mechanical support.

Secondary endpoints included need for up-titration or addition of new vasopressor therapy, time on inotropes, ICU length of stay (LOS), renal replacement therapy (RRT), inotrope cost per hospitalization, and all-cause in-hospital mortality.

RESULTS: There was no significant difference between the dobutamine and milrinone groups, respectively, in requirement of advanced mechanical support (4 vs. 6 patients; $p=0.461$), addition or up-titration of vasopressors (13 vs. 12 patients; $p=0.732$), ICU-LOS (7.5 vs. 9.1 days; $p=0.460$) or inotrope cost per hospitalization (\$83.40 vs. \$99.10, $p=0.559$). There was a significant difference between groups regarding time on inotropes (3.2 vs. 6.6 days; $p=0.002$), RRT (11 vs. 5 patients, $p=0.049$), and all-cause in-hospital mortality (12 vs. 3 patients; $p=0.003$).

CONCLUSION: Based on this study, choosing one inotrope over the other has no clear impact on the requirement of advanced mechanical support in patients with ADHF or CGS.

Video link: <https://vimeo.com/539386382>

Y Impact of an Additional Pharmacist Phone Call on Retention of HIV Pre-Exposure Prophylaxis (PrEP) Patients in an Outpatient Specialty Pharmacy Program

Room G

Presenters: Sarah Corpening

TITLE: Impact of an Additional Pharmacist Phone Call on Retention of HIV Pre-Exposure Prophylaxis (PrEP) Patients in an Outpatient Specialty Pharmacy Program

AUTHORS: Sarah Corpening; Kiara Byrd-Glover; Katie Trotta; Mohamed Aboemeara; Erika Giblin

OBJECTIVE: Identify the barriers to clinical follow-up and monitoring for PrEP patients.

SELF ASSESSMENT QUESTION: How can pharmacists address lapses in therapy in PrEP patients?

BACKGROUND: Develop a service to increase patient retention in clinical management at an outpatient specialty pharmacy to prevent lapses in therapy for PrEP patients.

METHODOLOGY: Eligible patients ≥ 18 years of age receiving PrEP therapy from the study site enrolled in standard clinical counseling and monitoring during from September 2020 to March 2021 were included. A clinical pharmacist contacted each patient in the intervention group to confirm follow up clinical PrEP monitoring was complete or scheduled. This ensured a new PrEP prescription was received prior to the patient running out of medication. The pharmacist also assessed barriers to HIV testing, adherence, and PrEP continuation. Retention was determined by lack of lapse in therapy based on the initial prescription's final refill date and the written date of the new prescription.

RESULTS: In progress: Of the 117 patients screened, 69 were included in the control group and 60 in the intervention group. The data of all 69 patients of the control group was analyzed. At the time of data collection, only 41 patients in the intervention group were eligible for analysis. Based on preliminary data, 39 patients were retained in the control group (57%), and 29 patients have been retained post-intervention (71%). The most common barrier to retention is forgetfulness.

CONCLUSIONS: In progress: Preliminary data suggests an additional pharmacist call to ensure proper HIV screening in PrEP patients improves patient retention and decreases lapses in therapy. Patients who otherwise would have had the barrier of forgetfulness were reminded of required monitoring before running out of their prescription.

Presentation Access: <https://youtu.be/h9gw7AI7zTM>

R EVALUATION OF PHARMACIST RESPONSE ON DOOR-TO-NEEDLE TIMES DURING ACUTE ISCHEMIC STROKE

Room B

Presenters: Kayla Nguyen

TITLE: Evaluation of Pharmacist Response on Door-to-Needle Times During Code Stroke

AUTHORS: Kayla Nguyen, Erica Roman, Kim Heath, Rachel Hemberger, Tudy Hodgman

PRESENTATION OBJECTIVE: Identify potential benefits of pharmacist presence during the management of acute ischemic stroke.

SELF-ASSESSMENT QUESTION: According to previously published literature, what potential benefit is associated with pharmacist presence in the management of acute ischemic stroke?

BACKGROUND: Timely administration of alteplase for ischemic stroke is associated with improved outcomes.

Guidelines recommend a door-to-needle (DTN) time, defined as time from patient arrival to time of alteplase administration, of 60 minutes or less. It is reported that less than one-third of patients met this goal in 2011. Previous studies suggest pharmacist response during stroke management reduces DTN times. The purpose of this study is to evaluate the impact of pharmacist response during code strokes by comparing DTN times in those with and without pharmacist response.

METHODOLOGY: This was a retrospective cohort analysis of patients between 18 and 89 years of age who received alteplase for acute ischemic stroke. Patients were allocated based on location, which determined pharmacist response during the code stroke. The primary endpoint was DTN time. Secondary endpoints included proportion of patients with DTN times ≤ 60 , ≤ 45 , and ≤ 30 minutes; imaging-to-needle (ITN) time; appropriateness of alteplase dosing; and proportion of patients with scaled body weights prior to alteplase administration to ensure accurate dosing.

RESULTS: Median DTN times were similar between pharmacist response and no pharmacist response groups (34.0 minutes vs 38.0 minutes). More appropriate alteplase dosing and use of scaled body weights were observed in the pharmacist response group (87.5% vs 81.7% and 87.5% vs 65.0%, respectively). Statistical analyses were not performed due to small sample size.

CONCLUSION: Minimal difference in DTN times were observed; however, the pharmacist response group did trend towards increased alteplase dosing accuracy and appropriate use of body weights.

PRESENTATION LINK: https://youtu.be/nyx_yhJ5ExU

R Impact of Propofol on Vasopressor Use in Mechanically Ventilated Septic Patients

Room C

Presenters: Mya Baker

TITLE: Impact of Propofol on Vasopressor Use in Mechanically Ventilated Septic Patients

AUTHORS: Mya Baker, Brittany NeSmith, Rachel Langenderfer, Regan Porter

OBJECTIVE: Identify differences in vasopressor requirements and outcomes for mechanically ventilated sepsis patients sedated with CIV propofol versus CIV midazolam or dexmedetomidine.

SELF ASSESSMENT QUESTION: In this study does CIV propofol for sedation cause a higher incidence of hypotension requiring vasopressor support in mechanically ventilated septic patients?

BACKGROUND: According to PADIS guidelines, nonbenzodiazepine sedatives are preferred in critically ill, mechanically ventilated adults due to improved outcomes such as ICU length of stay, duration of ventilation, and delirium. Propofol may potentiate or worsen hypotension which may prompt providers to choose another agent for sedation. The purpose of this study is to compare incidence of vasopressor use in continuous intravenous (CIV) propofol versus other CIV agents when used for sedation.

METHODOLOGY: This study is a multi-center retrospective cohort chart review from June 2013 to June 2019. Inclusion criteria include age ≥ 18 years, intubation within 48 hours of admission, sepsis criteria met within 2 hours prior to intubation, and started on continuous infusion analagosedation within 4 hours of intubation. Patients were excluded if they were not septic 2 hours prior to intubation, met septic shock criteria before sedation, immunosuppressed, intubated before arrival, or had a vasopressor requirement of less than 2 hours. The primary objective of this study is to assess the incidence of vasopressor support in mechanically ventilated septic patients sedated CIV propofol versus CIV midazolam or dexmedetomidine. Secondary objectives include an absolute change in mean arterial pressure (MAP), a greater than 20% decrease in MAP from baseline, average maximum vasopressor infusion rates, duration of vasopressor use, time-to-vasopressor use, length of ICU stay, and in-hospital mortality.

RESULTS: There were 200 participants enrolled in the IRB approved study, 100 in each group. Vasopressors were used in 31% of patients in the CIV propofol group and 44% in the CIV non-propofol group ($P=0.06$). Average baseline MAP was 96 mmHg in the CIV propofol group and 99 mmHg in the CIV non-propofol group.

CONCLUSIONS: This retrospective chart review demonstrated a higher incidence of vasopressor use in patients sedated with either CIV midazolam or dexmedetomidine than those sedated with CIV propofol.

<https://youtu.be/iH3wkBbJU5I>

I **Evaluating the use of carbapenem-sparing regimens in Klebsiella pneumoniae and Escherichia coli that are resistant to piperacillin/tazobactam yet susceptible to ceftriaxone** Room I

Presenters: Maggie Raker

TITLE: Evaluating the use of carbapenem-sparing regimens in Klebsiella pneumoniae and Escherichia coli that are resistant to piperacillin/tazobactam yet susceptible to ceftriaxone

AUTHORS: Maggie Raker, Amy Taylor, Eric Shaw

OBJECTIVE: At the conclusion of my presentation, the participant will be able to evaluate the efficacy and safety of non-carbapenem antibiotic use in patients with Escherichia coli and Klebsiella pneumoniae resistant to piperacillin/tazobactam yet susceptible to ceftriaxone.

SELF ASSESSMENT QUESTION: Is it reasonable to use a non-carbapenem antibiotic in patients with the specified resistance pattern?

BACKGROUND: Gram negative bacilli are a common cause of hospitalizations with increasing antimicrobial resistance. Recently, a unique resistance pattern of piperacillin/tazobactam non-susceptible (P/T-NS), ceftriaxone susceptible (CTX-S) Escherichia coli (E. coli) and K. pneumoniae (KP) was identified at Memorial Health University Medical Center (MHUMC). The purpose of this study was to determine if P/T-NS, CTX-S E. Coli and KP can be effectively and safely treated with non-carbapenem therapies such as CTX.

METHODOLOGY: This study was a single-center, retrospective chart review approved by the IRB. Included patients were identified by all-site cultures of E. coli and KP organisms with P/T-NS, CTX-S isolates from January 1st, 2019 to June 30th, 2020. Study groups were selected by choice of directed therapy: carbapenem vs. non-carbapenem agents.

RESULTS: The population size of the groups was imbalanced: carbapenem treatment (n=2), non-carbapenem treatment (n=18). Since a majority of patients never met primary endpoint criteria of time to infection resolution, defined as WBC

I **Evaluation of Convalescent Plasma Transfusion for the Treatment of Covid-19** Room H

Presenters: My Hanh Duong

TITLE: Evaluation of Convalescent Plasma Transfusion for the Treatment of Covid-19

AUTHORS: My Hanh Duong, Hyeseung Kang

OBJECTIVE: Discuss the efficacy and safety of convalescent plasma for the treatment Covid-19 in adult patients.

SELF ASSESSMENT QUESTION: Does convalescent plasma transfusion provide mortality reduction in patients with Covid-19?

BACKGROUND: Coronavirus disease 2019 (COVID-19) is a viral respiratory infection caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Clinical manifestations of COVID-19 can range from mild, self-limiting respiratory tract illness to severe progressive pneumonia that can lead to death. Convalescent plasma transfusion (CPT), a type of passive immunotherapy, is the transfer of antibodies from recovered donors in the form of plasma serum to help confer immunity in sick patients. In April 2020, FDA authorized the expanded access program for CPT to be used for the treatment of Covid-19. The aim of this study is to determine if CPT was an effective and safe COVID-19 treatment for patients who were admitted to our hospital.

METHODOLOGY: This is a single-center, retrospective chart review on COVID-19 patients who were admitted to Wellstar North Fulton from May 1st, 2020 to August 25th, 2020. A drug utilization report will be used to identify patients who received CPT for the treatment of COVID-19. Data will be collected and analyzed in a password-protected Microsoft Excel.

RESULTS: 4 patients in CPT group and 3 patients in non-CPT group died within 28 days of hospital admission. CPT group had a lower risk of 28-day-all-cause mortality, 8.9% vs 23% (RR=0.39, 95% CI 0.73 – 2.95). CPT showed less clinical improvement within 28 days, 53% vs 62% (RR=0.87, 95% 1.8 – 3.08). There was no significant adverse events from CPT

CONCLUSIONS: •CPT was not associated with a significant reduction in 28-day-all-cause mortality. It was associated with a lower rate of clinical improvement. It was well-tolerated by all patients who received it

Presenters: Sydney Madison

TITLE: Impact of Inpatient Order Panels on Direct Oral Anticoagulant Prescribing

AUTHORS: Sydney Madison, Sarah Berardi, Megan Jaynes, Bob Lobo, Colleen Morton

OBJECTIVE: Describe the effectiveness of implementation of clinical decision support on DOAC prescribing patterns.

SELF ASSESSMENT QUESTION: : True or False: DOAC dosing must be adjusted based on patient-specific factors, such as renal function, hepatic function, and indication.

BACKGROUND: Utilization of direct oral anticoagulants (DOACs) has increased dramatically over the last several years. Recommended dosing strategies for DOACs vary greatly depending on indication and other patient-specific factors; as a result, DOAC dosing errors are common, which may be associated with an increased incidence of adverse events. To improve prescribing patterns at our institution, clinical decision support was developed to guide dosing based on patient specific factors. The purpose of this study was to evaluate the effectiveness of this order panel on DOAC prescribing patterns at our institution.

METHODOLOGY: This study was a retrospective chart review and analysis of patients at Vanderbilt University Medical Center. Patients were classified into pre-panel implementation (control) and post- implementation (intervention) groups The primary endpoint of this study was the percentage of patients who were ordered the appropriate DOAC dose for the given indication, renal function, and hepatic function. Secondary outcomes included incidence of stroke, venous thromboembolism, or major bleeding during the index hospitalization.

RESULTS: In progress

CONCLUSIONS: In progress

VIDEO LINK: <https://youtu.be/V9HpktNi4oY>

Presenters: Christine Hanna

TITLE: Impact on 30-day readmissions in patients enrolled in a Meds to Beds Program: a collaboration between a hospital and independent pharmacy

AUTHORS: Christine Barjoud Hanna, Maria M Thurston, Teresa Pounds, Pamela Moye-Dickerson

OBJECTIVE: Evaluate the impact of a Meds to Beds program on 30-day readmissions in high readmission risk patients

SELF ASSESSMENT QUESTION: What is a pharmacist's role in a Meds to Beds Program?

BACKGROUND: Evaluate the impact of a Meds to Beds program on 30-day readmissions in high readmission risk patients

METHODOLOGY: This is a retrospective study designed to compare all-cause 30-day readmission rates in adult patients with CHF, COPD, AMI, or pneumonia who enrolled in a medication bedside delivery program to patients who did not enroll from November 2019 to November 2020. To identify medication-related readmissions, the electronic medical record was reviewed to identify medication therapy problems (MTP) using the Pharmacy Quality Alliance's MTP Categories.

RESULTS: 158 patients enrolled in the Meds to Beds Program during the study period. 58 patients in the Meds to Beds group met inclusion criteria. 129 patients were randomly selected for the control group. Eight patients were readmitted (13.8%) within 30 days from the Meds to Beds group and thirteen patients (10%) from the control group (pvalue = 0.081). Two patients had a medication-related readmission in the Meds to Beds group in the category of adverse drug reaction and adherence, and two patients in the control group in the category of adherence and needs additional medication therapy.

CONCLUSIONS: Previous evidence shows readmissions are higher for patients with the studied disease states and readmission risks are multifactorial. Although our results found there was no difference in all-cause 30-day readmission rates in the studied disease states who enrolled in a medication bedside delivery program to patients who did not enroll, we still believe there is an opportunity for pharmacists to intervene at the point of discharge and conduct medication reconciliations and counseling to better advance transitions of care and reduce hospital readmissions. A randomized control study is warranted to prove the relationship between a Meds to Beds Program and 30-day readmission rates.

Presenters: Lauren Cimino

TITLE: Assessing the Need for Insulin Pump and Continuous Glucose Monitoring (CGM) Education

AUTHORS: Lauren H. Cimino, Melanie Manis, B. DeeAnn Dugan, Stephen A. Brown, Timothy Garrett

OBJECTIVE: At the conclusion of this presentation, the participant will be able to identify the need for future education and training on insulin pumps and continuous glucose monitoring (CGM) systems within Alabama pharmacists.

SELF ASSESSMENT QUESTION: True or False: Most survey participants reported little to no experience with insulin pumps and/or CGMs.

BACKGROUND: In 2018, it was estimated that 34.2 million people of all ages in the United States had diabetes.

Studies have shown that the use of insulin pumps and continuous glucose monitoring (CGM) systems improve glycemic control and reduce the risk for hypoglycemic episodes in both Type 1 and Type 2 diabetics. The use of insulin pumps in Type 1 diabetes patients has drastically increased, as well as CGM use. One study has shown improved glycemic control when pharmacists are involved, but unfortunately there is limited pharmacist education in this area.

METHODOLOGY: This prospective, cross-sectional study used an anonymous, electronic 31-question survey that was distributed via five Alabama organizational listservs. Data collected included practice site, frequency of diabetes management, familiarity with insulin pumps and CGMs, certificate program completion, confidence levels, and assessment questions. Descriptive statistics were used to depict collected data. IRB approval was obtained from Samford University.

RESULTS: Of 466 participants, 352 were eligible to participate (77%), and 291 eligible patients completed the survey (83%). When surveyed about insulin pump and CGM confidence, most selected they do not feel confident in any area. Only 31% of surveyed practice sites have Diabetes Self-Management Education (DSME) accreditation. The vast majority (93-94%) stated they would be interested in completing CE about insulin pumps and CGMs. Participants would prefer a webinar or certificate-based program for education.

CONCLUSIONS: As insulin pumps and CGMs become more common in patients with type 1 and type 2 diabetes mellitus, many Alabama pharmacists have expressed the need and desire for further education with these devices. Next steps include the development of a webinar or certificate-based program to meet this need.

<https://samford.instructuremedia.com/embed/4ea2203f-b472-4a1e-afcf-637eb07d18a5>

TREATMENT IN A VETERAN POPULATION

Presenters: Courtney Lee

TITLE: EVALUATION OF OUTPATIENT PROVIDER MONITORING FOR ALCOHOL USE DISORDER (AUD)

TREATMENT IN A VETERAN POPULATION

AUTHORS: Courtney Lee, Lizmarie Aviles-Gonzalez

OBJECTIVE: Identify appropriate outpatient monitoring and pharmacotherapy for Alcohol Use Disorder (AUD).

SELF ASSESSMENT QUESTION: Is there a potential role for pharmacists as outpatient providers for patients with AUD on pharmacotherapy based on results of this project?

BACKGROUND: Evaluate outpatient provider monitoring for patients diagnosed with Alcohol Use Disorder (AUD) in a veteran population to compare medication monitoring and treatment progress among non-pharmacist and pharmacist outpatient providers.

METHODOLOGY: Eligible participants were those diagnosed with AUD currently on pharmacotherapy and being followed by an outpatient provider from 01/01/2020 to 12/31/2020. Patients were identified through the Veteran's Affairs AUD dashboard for pharmacotherapy monitoring, and patients monitored by a pharmacist-led outpatient AUD pilot program in the Primary Care setting. A chart review was conducted to assess baseline AUDIT-C score, changes in alcohol intake, adherence, dose adjustments, and adverse drug reactions related to gabapentin, naltrexone, acamprosate, disulfiram, and topiramate. Data was reviewed through means of pre-data for patients with non-pharmacist providers and post-data including patients with a pharmacist as the outpatient provider to determine differences in appropriateness of AUD therapy monitoring and treatment progress among patients with different providers.

RESULTS: Research completion yielded a total of 20 patients for pre-data results and 1 patient total for post-data results in the quality improvement project. Most frequent pharmacotherapy used was naltrexone mostly prescribed by the Mental Health service line.

CONCLUSIONS: Changes in alcohol intake and adherence were not addressed in several patients in the pre-data results. More post-data is needed for future comparison of outpatient providers and relation to treatment progress. There may be a role for pharmacists as outpatient providers for AUD monitoring in veteran populations.

Link to presentation stream: <https://vimeo.com/539195965>

C TIMing Evaluation of the Initiation of Thiazide-type diuretics (TIME-IT) for sequential nephron blockade

Room D

Presenters: Andrew Johnson

TITLE: TIMing Evaluation of the Initiation of Thiazide-type diuretics (TIME-IT) for sequential nephron blockade

AUTHORS: Andrew Johnson, Kayla Nichols, Stuart Hurst

OBJECTIVE: Evaluate the difference in 6-hour urine output when thiazide-type diuretics are administered prior to versus concurrently with intravenous loop diuretics.

SELF ASSESSMENT QUESTION: Is there a difference in 6-hour urine output when thiazide-type diuretics are administered ≥ 25 minutes versus < 25 minutes prior to loop diuretics?

BACKGROUND: Sequential nephron blockade combats loop diuretic resistance. Administration of the thiazide-type diuretic 30 minutes before the loop diuretic theoretically optimizes the agents' pharmacokinetic relationship. However, evidence detailing safety and efficacy regarding this timing strategy is lacking. This study evaluated the optimal temporal relationship of thiazide-type and loop diuretic administration in the implementation of sequential nephron blockade.

METHODS: This was a single-center retrospective crossover study evaluating patients hospitalized with acute decompensated heart failure, categorized as loop diuretic resistant, and administered sequential nephron blockade at least twice. Each patient received a thiazide-type diuretic ≥ 25 minutes and < 25 minutes prior to an intravenous loop diuretic. The primary outcome was to compare 6-hour total urine output between each timing strategy. Secondary outcomes were to compare 6-hour total urine output in patients receiving exclusively metolazone or chlorothiazide, 6-hour hourly urine output, hypokalemia, hypomagnesemia, hyponatremia, and hypotension between each timing strategy.RESULTS: Seventy-nine patients were included. Six-hour total urine output when the thiazide-type diuretic was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic was 1,381.8mL versus 1,309.9mL, respectively ($p=0.38$). In metolazone-treated patients, 6-hour total urine output when metolazone was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic was 1,929mL versus 897.5mL, respectively ($p=0.13$). There were no differences in 6-hour hourly urine output or safety outcomes.CONCLUSIONS: There were no significant differences in 6-hour urine output when the thiazide-type diuretic was administered ≥ 25 minutes versus < 25 minutes prior to the loop diuretic. A numerically larger but non-statistically significant 6-hour urine output difference between groups was demonstrated in patients receiving exclusively metolazone.<https://youtu.be/vG7PpeAAXGQ>**R Dexmedetomidine to facilitate successful extubation in agitated mechanically ventilated patients**

Room C

Presenters: Jenna Sorgenfrei

TITLE: Dexmedetomidine to facilitate successful extubation in agitated mechanically ventilated patients

AUTHORS: Jenna Sorgenfrei, Kristin Welborn, Alex Ewing, Michael Wagner

OBJECTIVE: Determine if dexmedetomidine helps facilitate extubation in agitated mechanically ventilated patients

SELF ASSESSMENT QUESTION: What is the most common adverse effect of dexmedetomidine?

BACKGROUND: Agitation and delirium are common consequences that lead to poorer outcomes in the intensive care unit (ICU). In patients with delirious agitation, weaning sedatives to facilitate extubation is inversely complicated by increasing agitation, making extubation unsafe or unsuccessful. Dexmedetomidine is potentially advantageous as it provides a bridge to extubation while avoiding increasing agitation, but there is limited evidence supporting its effectiveness.

METHODOLOGY: A single-center institutional review board-approved retrospective chart review was conducted on agitated ventilated ICU patients receiving the ICU sedation protocol with or without the use of dexmedetomidine in the 24 hours leading up to extubation between August 2017 and September 2020. The primary outcome was ventilator free hours in the 7 days after first extubation attempt. Secondary outcomes included hospital and ICU length of stay, ICU mortality, and incidence of bradycardia or hypotension.

RESULTS: A total of 200 patients were included, with 100 in the dexmedetomidine group and 100 in the control group. Average ventilator free hours in dexmedetomidine and control group were 153 and 139 hours, respectively ($p = 0.058$). There was a significantly longer ICU length of stay ($p = 0.004$) and hospital length of stay ($p = 0.007$) in the dexmedetomidine group, with no difference in ICU mortality ($p = 1.0$).

CONCLUSIONS: There was no significant difference in ventilator free hours when dexmedetomidine was added to the ICU sedation protocol, and patients in the dexmedetomidine group had a significantly longer ICU and hospital length of stay as compared to the control group. However, a large prospective trial is still needed to determine if there is any utility in dexmedetomidine use in ventilated patients with delirious agitation.

PRESENTATION: https://youtu.be/L7mtfVrO_b8

Presenters: Taylor Odom

TITLE: Perception of pediatric and neonatal emergency preparedness across a community hospital health system

AUTHORS: Taylor Odom, PharmD; Amanda Williams, PharmD, BCPS, BCPPS; Elizabeth Ezell, PharmD; Nichole Moore, PharmD

OBJECTIVE: This study is conducted to increase the ability of healthcare providers to provide neonatal and pediatric care in emergency situations by providing education regarding the processes of effectively preparing and administering medications to infants and children.

SELF ASSESSMENT QUESTION: What is the difference in the confidence of healthcare providers before and after education is provided regarding the preparation and administration of medications to pediatric and neonatal patients during cardiopulmonary resuscitation?

BACKGROUND: Providers in health systems that predominantly treat adult patients are often less familiar with the orientation of pediatric emergency kits and neonatal crash carts, which can lead to a delay in the initiation of care, as well as increase the risk of medication administration mistakes. This study is conducted to increase the ability of healthcare providers to provide neonatal and pediatric care in emergency situations by providing education regarding the processes of effectively preparing and administering medications to infants and children.

METHODOLOGY: Nurses, providers, and pharmacists who primarily prepare and administer emergency medications used in pediatric emergency kits and neonatal crash carts were identified for the survey. Survey results will be anonymously submitted. Healthcare provider's perception of the health system's emergency preparedness will be determined, as well as gaps in knowledge regarding crash cart orientation and emergency medication dosing, based on these survey results. Education will then be provided through the completion of an online video module. Healthcare providers will be re-surveyed after participation in the education simulation to assess improvement in their ability to efficiently, safely, and effectively provide emergency care to pediatric and neonatal patients.

RESULTS: In process

CONCLUSIONS: In process

I Comparing outcomes of MRSA-related infections treated with vancomycin when utilizing a one level only calculator targeting AUC compared to targeting higher troughs alone.

Presenters: Caroline Hansford

TITLE: Comparing outcomes of MRSA-related infections treated with vancomycin when utilizing a one level only calculator targeting AUC compared to targeting higher troughs alone.

AUTHORS: Caroline Hansford, Tiffany Goolsby

OBJECTIVE: At the conclusion of my presentation, the participant will be able to evaluate therapeutic failure and acute kidney injury in patients with MRSA infections on vancomycin that were dosed based on the new AUC goals utilizing a single level calculator compared to those dosed based on higher trough goals prior to guideline changes

SELF ASSESSMENT QUESTION: True or False. It is recommended to target AUC/MIC for all indications when dosing Vancomycin.

BACKGROUND: In 2020, guidelines on vancomycin dosing were updated recommending AUC targets over troughs due to decreased nephrotoxicity without compromising efficacy. Overtime, AUC pharmacokinetic equations have been simplified and the guidelines recommend using two levels to determine AUC. In clinical practice, our institution began utilizing a single level steady state calculator to determine AUC in 2019. Our study assessed vancomycin dosing and compared the rates of treatment failure and Acute Kidney Injury (AKI) in patients being treated with vancomycin for MRSA-related infections, with targeting an AUC/MIC 400-600 and troughs of 10-20 mcg/dL with a trough-only based calculator compared to targeting a trough of 15-20 mcg/dL only.

METHODOLOGY: retrospective chart review was performed on patients at the AVAMC who were initiated on vancomycin for a documented MRSA-related infection and achieved a steady-state level before January 2019 (pre-guideline change) and January 2019 and beyond (post-guideline change) to assess treatment failure, AKI, trough and AUC. AUC was calculated based on the first steady state trough level utilizing the trough-only AUC calculator on vancopk.com.

RESULTS: Overall, there were no treatment failures documented in either group. However, there were 4 deaths in the pre-intervention group vs the post intervention group. The rates of AKI were 7/100 (7%) in the pre-intervention group vs 4/53 (8%) in the post intervention group. The average steady-state trough and AUC was 16 vs 10.8 mg/dL and AUC 803 vs 429 in the pre-intervention and post intervention group respectively. A secondary analysis was performed to fully evaluate our primary and secondary outcomes. We found that in patients that developed AKIs in our pre-intervention group 86% were also on concomitant therapy with piperacillin/tazobactam, and the average subsequent trough calculated was 13.2 mcg/dL. In those that developed AKI in the post-intervention group 75% were on concomitant therapy with piperacillin/tazobactam, and the average subsequent trough calculated was 14.7 mcg/dL.

CONCLUSIONS: Targeting AUC with a vancomycin trough only calculator versus targeting higher vancomycin trough goals was not associated with increased treatment failure or a significant difference in AKI at our institution. We did observe a lower average trough and AUC compared to trough-only dosing, but our results did not demonstrate AUC monitoring was associated less AKI. The lack of difference in AKI may have been confounded by co-administration with piperacillin/tazobactam as well as our small sample size, and further investigation is needed.

https://static.sched.com/hosted_files/2021southeasternresidency/ed/Hansford.mp4

I The Impact of Select Medication Classes Taken Prior to Hospital Admission on Mortality and Morbidity in COVID-19 Patients

Presenters: Danielle Casaus

TITLE: The Impact of Select Medication Classes Taken Prior to Hospital Admission on Mortality and Morbidity in COVID-19 Patients

AUTHORS: Danielle Casaus, John Boreyko, Rachel Toler, Julie Thompson, Andrew Darkow

OBJECTIVE: Identify whether select medication classes taken prior to hospital admission are associated with a difference in mortality and morbidity in COVID-19 patients.

SELF ASSESSMENT QUESTION: Did any of the select medication classes have an associated difference in regards to mortality or morbidity in COVID-19 patients?

BACKGROUND: Since the beginning of the Novel Coronavirus 2019 (COVID-19) pandemic, many theories have been generated on the impact several medication classes may have on COVID-19 infections. These classes include both prescription and over-the-counter medications taken in an outpatient setting.

METHODOLOGY: This study was a multi-center, retrospective, observational case-control study within an academic health system that included patients 18 years of age or older with a positive inpatient COVID-19 polymerase chain reaction (PCR) between March 15, 2020 and September 30, 2020. The medication classes evaluated in this study included: angiotensin converting enzyme (ACE) inhibitors/angiotensin receptor blockers, histamine 2 receptor antagonists (H2RAs), proton pump inhibitors, melatonin, anticoagulants, and antiplatelet agents. Patients were categorized based on whether they were taking a medication from each class prior to their hospital admission, with each medication class evaluated separately. The primary endpoint was the difference in hospital mortality between each group. Secondary endpoints included need for intensive care unit admission, hospitalization for greater than 8 days, and need for 6 or more liters of oxygen during hospitalization.

RESULTS: ACE inhibitors were the only medication class that met statistical significance for increased hospital mortality, ICU admissions, and need for 6 or more liters of oxygen. None of the studied medication classes were significant for hospitalization for greater than 8 days. ACE inhibitors were evaluated using a regression model, which only found a statistically significant difference in increased ICU admissions and need for 6 or more liters of oxygen.

CONCLUSIONS: Based on our results, ACE inhibitors may negatively impact mortality and morbidity in COVID19 patients.

Presenters: Haley Hubbard

TITLE: Evaluation of dexamethasone use in patients with diabetes for postoperative nausea and vomiting (PONV)

Link of visual presentation (if needed): <https://vimeo.com/538968896>

AUTHORS: Haley Hubbard, PharmD; Lauren Whitfield, PharmD; AR Campbell, PharmD, BCPS, Stephanie Smith, PharmD, BCCCP, Sara Velky PA-C, Katherine Johnson, MD

OBJECTIVE: Evaluate the use of dexamethasone in patients with diabetes, effects on glycemic control within a 24-hour postoperative period, and its impact on length of stay.

SELF ASSESSMENT QUESTION: What is the hypothesized mechanism of action of the anti-emetic effect of dexamethasone?

BACKGROUND: The underlying mechanisms of hyperglycemia in a postoperative setting and its relationship to poor outcomes is not completely understood. Corticosteroids are inherently associated with hyperglycemia and per the 2014 Anesthesiology guidelines for the management of PONV, dexamethasone is used as an alternative and adjunct agent to ondansetron. Data may also support the use of dexamethasone in a perioperative setting for the following benefits: reduction of opioid consumption and surgery-related inflammation.

METHODOLOGY: A retrospective chart review will be conducted on patients with diabetes who received at least one dose of dexamethasone, ondansetron, or both. Data will be collected through an EPIC-generated report that includes patients with diabetes (Type 1 and Type 2), who are ≥ 18 years of age, admitted to the surgical floors of a 322-bed hospital, received a dose of dexamethasone, ondansetron, or both for PONV. Patients will be excluded if they underwent an emergent cardiovascular-related or standard neurological-related surgical procedure, were SARS-CoV-2 positive while undergoing the procedure, part of a vulnerable population, had a current infection, or received steroids chronically. The drug, dose, time of administration, and blood glucose levels will be collected using the EMR. The primary outcome measure is to determine the relationship between the dose of dexamethasone administered and subsequent increase in blood glucose levels. Secondary outcomes will include length of stay, achievement of glycemic control as recommended by the SCIP guidelines as < 180 mg/dL or > 200 mg/dL within the first 24-hours after surgery, type of surgical procedure, occurrence of PONV, type of anesthesia used at induction, amount of corrective insulin used, postoperative opioid use and pain management, surgical-site infections, and its overall effect on patient's quality of care.

RESULTS: Total of 106 patients included in the retrospective chart review. Dexamethasone + ondansetron (n=59) vs. ondansetron monotherapy (n=47) showed no significant difference between the two groups for the occurrences of a BGL > 180 mg/dL 24-hours of the surgical procedure. Secondary outcomes were not significantly different with length of stay, opioid consumption, and insulin use. There was no documented occurrences of surgical site infections or PONV with either therapy.

CONCLUSIONS: Patients who received dexamethasone + ondansetron at induction of anesthesia had a shorter length of stay when compared to those who just received ondansetron – especially in the orthopedic surgeries and some abdominal surgeries. A total of 106 patients were evaluated, there was no statistical significance in the study's primary or secondary outcomes between the two groups of patients.

P The pharmacist's role in the development of a long-acting injectable antipsychotic clinic at a Veterans Affairs Medical Center

Room G

Presenters: Amber Brewer

TITLE: The pharmacist's role in the development of a long-acting injectable antipsychotic clinic at a Veterans Affairs Medical Center

AUTHORS: T. Amber Brewer; Brooke Butler; Meredith Blalock.

OBJECTIVE: Define the role a pharmacist can have in a long-acting injectable antipsychotic clinic.

SELF ASSESSMENT QUESTION: What is the recommended timeframe for conducting AIMS assessments in patients at high risk for movement adverse effects?

BACKGROUND: The use of long-acting injectable antipsychotics (LAIAs) is associated with increased medication adherence and reduced relapse rates in patients with mental health disorders. However, LAIAs require frequent monitoring and may contribute to metabolic and movement disturbances. The psychiatric pharmacist is trained to monitor LAIAs. Currently, there is no formal process to monitor Veterans receiving long-acting injectable antipsychotics (LAIs) our VA Medical Center or its associated clinics. At the start of the study 38 veterans were prescribed an LAIA. Of these, 7 (18.4%) were overdue for metabolic labs and 25 (65.8%) were overdue for Abnormal Involuntary Movement Scale (AIMS) and waist circumference assessments at the beginning of this project. The goals of this project are to establish a psychiatric pharmacist-led LAIA clinic, streamline the monitoring and ordering process for LAIAs, and improve to improve treatment outcomes for patients receiving LAIAs.

METHODOLOGY: An initial chart review was conducted in September 2020 to determine the total number of veterans receiving an LAIA, adherence rates, and assess monitoring compliance per institutional policy. A proposal outlining the purpose, methods, and timeline of introducing a pharmacist-led LAIA outpatient clinic was presented by the lead investigator and approved by the Pharmacist and Therapeutics Committee. Individual chart reviews were completed on all patients prescribed a long-acting injectable antipsychotic to document monitoring. Prescribing provider and nursing were tagged on notes to alert to actionable patient. Pharmacist worked with nursing to coordinate lab draws, AIMS assessments, and vital sign collections. The intervention period was 7 months, during which the goal was to increase the following by at least 20%: Metabolic laboratory monitoring, Abnormal Involuntary Movement Screenings (AIMS), waist circumference assessments, and vital signs.

RESULTS: Currently as of April 2021, there are 45 patients receiving LAIAs at the Dublin VAMC. Of these, 5 (11.1%) were overdue for metabolic labs, 8 (17.8%) were overdue for Abnormal Involuntary Movement Scale (AIMS) and 17 (37.8%) were overdue for waist circumference assessments.

CONCLUSIONS: The mental health pharmacist can play an important role in a long-acting injectable antipsychotic clinic.

T Impact of Transitional Care and Pharmacy Interventions for Patients Receiving Rifaximin at a Large Academic Medical Center

Room A

Presenters: Mary Pat Holder

TITLE: Impact of Transitional Care and Pharmacy Interventions for Patients Receiving Rifaximin at a Large Academic Medical Center

AUTHORS: Mary Pat Holder, Ginny Tyler Meadows, DeAnn Jones, Steven Lawley, Meagan Fowler

OBJECTIVE: Discuss ways to improve patient care and reduce readmissions for those receiving specialty medications through transitional care at UAB.

SELF ASSESSMENT QUESTION: From the findings of this study, what are ways transitional care services can benefit patients requiring specialty medications?

BACKGROUND: Transitional care has become an important aspect of providing safe, quality, and efficient healthcare to patients. Without appropriate coordination, the transition from inpatient to outpatient setting may result in medication errors or adherence issues. Rifaximin is commonly initiated while inpatient with the intent to continue treatment at discharge. The nature and specialty classification of rifaximin often leads to problems with insurance approval, prescription affordability, dispensing delays, compliance, and acute worsening of disease.

METHODOLOGY: This study included a prospective observation of patients prescribed rifaximin over a 3-month time frame utilizing a new electronic order set encouraging use of onsite specialty pharmacy for benefits investigation, as well as a retrospective chart review over 12 months as the comparator group. The primary objective was to determine the time to fill the medication from the outpatient pharmacy prior to discharge. The secondary objectives evaluated adherence, readmissions due to HE in a 3-month time period, and cost saving opportunities.

RESULTS: Of the 131 patients included, 69 were retrospective review patients and 62 were prospective review patients. A total of 66 patients (50%) appropriately filled the prescription post-discharge with an average time to fill of 6 days. Medication adherence from initial fill date included 17 of 69 patients (25%) in the retrospective group and 19 of 62 patients (31%) in the prospective group. Readmissions included 45 of 131 patients (34%) within 3 months.

CONCLUSIONS: While not statistically significant, incorporation of the new electronic order set within the prospective group may have improved time to fill for rifaximin. Readmission rates remained similar between retrospective and prospective groups. Given this data, patient outcomes may improve with coordinated management between inpatient and outpatient teams.

AUDIOVISUAL PRESENTATION: <https://youtu.be/peAph3UAHYw>

Presenters: Rachel Stogner

TITLE: Improving Medical Center Compliance with Dose Error Reduction System (DERS)

AUTHORS: Rachel Stogner, PharmD, Anne Parnell, PharmD, MBA, BCPS

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify the appropriate DERS compliance rate as recommended by the Institute for Safe Medication Practices.

SELF ASSESSMENT QUESTION: Which of the following is the appropriate DERS compliance rate as recommended by the Institute for Safe Medication Practices?

BACKGROUND: In FY20, Ralph H. Johnson VA Medical Center was 79.8% compliant with Alaris Guardrails, our local dose error reduction system, and did not meet ISMP compliance standards (recommended >95% compliance). Under-compliance with dose error reduction systems like Guardrails can lead to medication errors that significantly impact patient safety. The purpose of this quality improvement project is to increase facility compliance rate with Alaris Pump Guardrails from 79.8% to >90% by February 31, 2020.

METHODOLOGY: Any fluid or medication administered via Alaris Pump will be evaluated for compliance with Alaris Guardrails. In order to increase facility compliance, several interventions will be made:

- Provide training at nursing huddles and staff meetings to address knowledge gaps related to Alaris Guardrails
- Review Alaris Pump Guardrails drug library and update library entries to promote use and decrease barriers
- Distribute educational posters promoting the use of Alaris Guardrails on units throughout medical center
- Complete compliance checks in real-time to identify and address barriers to use for nursing staff
- Review of facility compliance data for 3 months at baseline and then on a monthly basis during the intervention period to determine impact on compliance with Alaris Guardrails

RESULTS: Average facility compliance with Alaris Guardrails DERS increased by 4% with focused nursing education interventions

CONCLUSIONS:

- Regular nursing training and education is essential to maintaining competency of all clinical staff related to the use of dose error reduction systems
 - Interprofessional collaboration between pharmacy and nursing services is optimal in promoting the use of dose error reduction systems as an expected practice
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Presenters: Kenicia Walker

TITLE: Use of Pharmacist Telehealth Visits During the COVID-19 Pandemic and Going Forward

AUTHORS: Kenicia Walker, Elizabeth Oldham, Andrew Hwang, Danielle Baker, Beth Williams, Lauren Alderman

OBJECTIVE: Describe the impact of telehealth visits in patients with chronic disease states pre and post implementation of telehealth services.

SELF ASSESSMENT QUESTION: Telehealth visits have been demonstrated to be impactful for what specific patient outcomes?

BACKGROUND: Current literature supports the use of pharmacist services provided via telehealth to improve medication adherence and to decrease travel-time for patients living in rural areas or in the veteran population.

Additional research is needed to better assess the impact of these virtual visits on patient outcomes and access to care in a broad patient population. The coronavirus disease-19 (COVID-19) pandemic has greatly altered our society and healthcare system. This crisis has made necessary a rapid adoption of telehealth to deliver patient care at a safe distance.

METHODOLOGY: A single-center retrospective chart review for patients managed by pharmacists in an ambulatory clinic setting between September 2019 and September 2020. Patients will be included if they are ≥ 18 years of age with at least 1 office visit during the months of September 2019- February 2020 (pre-telehealth implementation) and at least 1 documented telehealth visit during the months of April 2020-September 2020 (post-telehealth implementation), have diabetes, hypertension, dyslipidemia, chronic lung disease, or tobacco cessation. Excluded patients were those whom were previously managed electronically or by phone having ≥ 2 visits in a 4 week period within the designated pre-telehealth period. Each patient will serve as their own control for statistical analysis and comparison of the endpoints. The primary outcome is change in frequency of telehealth visits vs face-to-face visits. Secondary outcomes include: mean change in A1C, patient satisfaction, pharmacist satisfaction, percentage of patients meeting American Diabetes Association- A1c goal of $< 7\%$ for diabetes, frequency of hospitalizations and ED visits related to chronic condition(s), and the travel distance from patient home to clinic.

RESULTS: In progress.

CONCLUSIONS: In progress.

Presenters: Amanda Hammond

TITLE: Adjunctive Phenobarbital in the Treatment of Severe Alcohol Withdrawal

AUTHORS: Amanda Hammond Patrick Filkins Joe Carpenter Lindsay Rothstein Sara Miller Ted Walton Marina Rabinovich

OBJECTIVE: List potential benefits of phenobarbital as an adjunctive therapy in alcohol withdrawal syndrome.

SELF ASSESSMENT QUESTION: In which patient population might the continued study of phenobarbital show benefit in regard to efficacy and safety?

BACKGROUND: To evaluate clinical and safety outcomes of patients who received phenobarbital adjunctive to benzodiazepines (BZD) for severe alcohol withdrawal syndrome (AWS).

METHODOLOGY: Single-center, retrospective, medical record review at Grady Hospital from January, 2010 through June, 2020 of adults admitted with severe AWS. Patients were included if they were assessed and treated per hospital-specific Grady Alcohol Withdrawal Assessment Scale (GAWAS) and BZD protocol. Protected populations, mild to moderate AWS, previously enrolled patients were excluded. Patients who received phenobarbital in addition to BZD were compared to patients who did not receive phenobarbital at any time during treatment. The primary outcome was mean BZD amount (measured in lorazepam equivalents) administered per patient per day. Secondary outcomes included hospital and ICU length of stay, duration of treatment, total phenobarbital dose, and percentage of patients requiring intubation, experiencing seizures, and receiving rescue therapies.

RESULTS: 141 patients were evaluated. Ninety-five patients met exclusion criteria and 46 patients were included, 19 in phenobarbital group and 27 in non-phenobarbital group. There were no significant differences between the groups with regards to baseline demographics. Patients in non-phenobarbital group received lower total (103mg vs. 134.5mg, $p=0.53$), symptom-triggered (11.3mg vs. 12.7mg, $p=0.24$), and infusion-based (40.3mg vs. 51.4mg, 0.38) amounts of BZD. Hospital and ICU length of stay was lower in non-phenobarbital group (5.2 vs 7.2, $p=0.22$ and 8.4 vs 11.2, $p=0.31$). Use of rescue therapies, intubation, and seizures occurred at a non-significantly higher rate in BZD/phenobarbital group.

CONCLUSIONS: No significant differences were seen between treatment groups. Therefore, it is possible that there is not significant benefit from the use of phenobarbital as an adjunctive to BZD treatment for alcohol withdrawal.

PRESENTATION: <https://drive.google.com/file/d/1uicHREGzfkPmRNqoMbkq9QQjoyLhmgJ-/view?usp=sharing>

R Evaluation of a pharmacist-led, high-risk medication consultation service for geriatric trauma patients at a level-1 trauma center

Room C

Presenters: Corey Bray

TITLE: Evaluation of a pharmacist-led, high-risk medication consultation service for geriatric trauma patients at a level-1 trauma center

AUTHORS: Corey Bray, Breanna Carter, Emily Garrett, Amanda Torbett, Lacie Bradford, Darren Hunt

OBJECTIVE: Evaluate pharmacist impact on high-risk medication use in geriatric trauma patients

SELF ASSESSMENT QUESTION: Do pharmacists positively impact the number of high-risk medications from admission to discharge?

BACKGROUND: Medication reconciliation and avoiding high-risk medications are important approaches to improve patient safety outcomes in the geriatric trauma population. Physiologic changes in geriatric patients, communication barriers, and polypharmacy create challenges obtaining an accurate medication history and may lead to adverse drug events. Pharmacists can help prevent adverse drug events through completing medication reconciliation and making targeted interventions on high-risk medications in geriatric patients. This study evaluates the impact of pharmacist services on the utilization of potentially inappropriate medications in geriatric trauma patients.

METHODOLOGY: This study includes patients 65 years or older admitted to the trauma service at the study institution. The pre-intervention group includes patients from September 2019 through February 2020 and the intervention group includes patients admitted after September 1, 2020. The pharmacist will attempt medication reconciliation completion within 72 hours of admission and document medication recommendations. Patients who are prescribed a high-risk medication at home will receive a letter to their primary care provider in the discharge documentation requesting review of potentially inappropriate medications and alternatives. The pharmacist will follow up 30 days post-discharge to assess acceptance of recommendations. Trauma Surgery providers were surveyed prior to implementation, educated on high-risk medication use in geriatric patients, and will be resurveyed prior to study completion to assess the impact of pharmacist services. The primary outcome is the number of potentially inappropriate medications identified on admission and discharge including anticholinergics, antiemetics, tricyclic antidepressants, sedative/hypnotics, and skeletal muscle relaxants. Secondary outcomes include acceptance of pharmacist recommendations during admission and follow-up, hospital and ICU length of stay, 30-day readmission rate, time to medication reconciliation completion, number of medication reconciliations completed, number of admission and discharge medications, and complications during admission.

RESULTS: In progress

CONCLUSIONS: In progress

<https://youtu.be/7GYmbSFDRre>

R INCIDENCE OF FLUID DE-RESUSCITATION IN SEPTIC SHOCK PATIENTS WHO RECEIVE FLUID BOLUS ALONE VERSUS FLUID BOLUS PLUS MAINTENANCE FLUIDS

Room B

Presenters: Stephen McCall

TITLE: INCIDENCE OF FLUID DE-RESUSCITATION IN SEPTIC SHOCK PATIENTS WHO RECEIVE FLUID BOLUS ALONE VERSUS FLUID BOLUS PLUS MAINTENANCE FLUIDS

AUTHORS: Stephen McCall, Joseph Crosby, Sabrina Croft

OBJECTIVE: Describe results of our retrospective review and identify implications of conservative fluid management compared to maintenance fluids in patient care.

SELF ASSESSMENT QUESTION: What is one potential benefit to conservative fluid management after initial resuscitation in patients with septic shock?

BACKGROUND: Following initial fluid resuscitation, guideline recommendations for further fluid management in patients with sepsis and septic shock have minimal support in the literature to guide clinicians and are contingent upon frequent hemodynamic assessment as best practice. Our aim is to determine potential difference in incidence of need for mechanical or chemical diuresis between patients who receive fluid boluses alone compared to fluid bolus plus maintenance fluids.

METHODOLOGY: Patients 18 years or older were included in this retrospective, observational, chart review based on admission to one of the intensive care units at St. Joseph's or Candler Hospital and diagnosed with septic shock between January 1, 2016 and December 31, 2019. The health system's software was used to identify patients with this diagnosis and received bolus fluids with or without maintenance fluids. Patients included also had additional information gathered including comorbid disease states, admission date, and 30-day mortality.

RESULTS: 107 total patients were included in the IRB-approved study; 26 were in the bolus alone group, and 81 were in the bolus plus maintenance fluids group. Incidence of chemical diuresis in the bolus alone group versus bolus and maintenance fluids group was 34.6% compared to 58.0%, respectively; incidence of mechanical diuresis in the bolus alone group versus bolus and maintenance fluids group was 7.7% compared to 16.0%, respectively. Total fluids, time in ICU, and hospital length of stay were lower in the bolus alone group. There was no difference in mortality.

CONCLUSIONS: Results indicate that boluses of fluids alone result in a statistically significant decreased incidence of chemical and mechanical diuresis utilized, along with shorter hospital length of stay compared to bolus plus maintenance fluids. There was no difference between the groups regarding time on mechanical ventilation or 30-day mortality. Further analysis limited by power; multivariate analysis pending.

<https://youtu.be/RPqj0olfNNY>

I DOXYCYCLINE AND CEFTRIAXONE VERSUS AZITHROMYCIN AND CEFTRIAXONE FOR CRITICALLY ILL PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA: A RETROSPECTIVE COHORT

Room I

Presenters: Nathan Fields

TITLE: DOXYCYCLINE AND CEFTRIAXONE VERSUS AZITHROMYCIN AND CEFTRIAXONE FOR CRITICALLY ILL PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA: A RETROSPECTIVE COHORT

AUTHORS: Nathan Fields, Julia Pate, Benjamin Casey

OBJECTIVE: Examine the role of doxycycline for severe inpatient community acquired pneumonia.

SELF ASSESSMENT QUESTION: What are the benefits of atypical microbiological coverage with doxycycline compared to other agents?

BACKGROUND: Community acquired pneumonia (CAP) is a significant contributor to morbidity and mortality in the United States with an estimated 1.3 million emergency department visits and 50,000 deaths annually. The mainstay of treatment for severe, inpatient CAP is ceftriaxone plus azithromycin, although the use of azithromycin may be associated with adverse cardiovascular outcomes in critically ill patients. On the other hand, doxycycline, an alternative treatment option recommended by the guidelines for non-severe CAP, does not carry the same cardiovascular risks. However, its role in severe CAP has not been established. The role of this study is to investigate the role of doxycycline plus ceftriaxone in critically ill patients with severe CAP.

METHODOLOGY: In this retrospective chart review, ceftriaxone plus azithromycin (CTX+AZM) was compared to ceftriaxone plus doxycycline (CTX+DOXY) in critically ill adults with severe CAP. Eligible participants were between the ages of 18 and 89, admitted to an ICU for at least 48 hours, and treated with CTX+AZM or CTX+DOXY for radiographically confirmed pneumonia for at least 48 hours.

RESULTS: A total of 328 patients were reviewed for inclusion and only 62 patients met the predetermined inclusion criteria: 13 in the CTX+DOXY group and 49 in the CTX+AZM group. No difference was observed between the treatment groups for the primary composite endpoint of inpatient mortality and adverse cardiovascular events (CTX+DOXY: 30.8%, CTX+AZM: 32.7%, 95% CI 0.28-3.17). Additionally, there were no statistical differences in ICU length of stay or hospital length of stay.

CONCLUSIONS: CTX+DOXY was not associated with statistically different mortality or cardiovascular outcomes compared to CTX+AZM. Larger randomized trials are needed to assess the role of doxycycline relative to azithromycin for the treatment of critically ill inpatients with CAP.

Recorded presentation link: <https://www.youtube.com/watch?v=1ffQKaDVm3M>

I INITIATIVE TO DECREASE OVERPRESCRIBING OF ANTIBIOTICS FOR PROPHYLAXIS AND TREATMENT OF DENTAL RELATED INFECTIONS

Room H

Presenters: Makenzie Benton

TITLE: INITIATIVE TO DECREASE OVERPRESCRIBING OF ANTIBIOTICS FOR PROPHYLAXIS AND TREATMENT OF DENTAL RELATED INFECTIONS

AUTHORS: Makenzie Benton, Caitlyn Ocampo, Brian Leith, Amanda Karels

OBJECTIVE: Demonstrate the impact of education and order set development on prescribing rates of antibiotics within the FVA dental department.

SELF ASSESSMENT QUESTION: What is one consequence of prescribing antibiotics for prophylaxis during routine dental procedures?

BACKGROUND: Provide dental staff with education and updated medication order-sets needed to appropriately prescribe antibiotic regimens. Through these implementations, it is anticipated to decrease overprescribing of antibiotics and lessen unnecessary exposure, all while combating drug resistance.

METHODOLOGY: This project was conducted as a single center, prospective cohort analysis. Data reports for August, September and October of 2019 were pulled from VA records to reflect total number of dental encounters and prescribed antibiotics at FVA. During August 2020, dental staff were educated via PowerPoint presentation by the first-year pharmacy resident and antimicrobial stewardship clinical pharmacist. Additionally, a new order-set was implemented into the medication ordering system, to assist providers with appropriate antibiotic selections. Identical data reports were later obtained for September and October of 2020, to assess for change in prescribing rates. Only five, seven, and 10-day prescriptions were included for treatment related data, to allow for a more noticeable comparison. No exclusions were applied to prophylactic antibiotic prescriptions.

RESULTS: Data from August, September and October of 2019, consisted of 4,052 dental encounters, which included 237 prophylaxis prescriptions (5.8%) and 134 treatment prescriptions (3.3%). In comparison, September and October of 2020 had a total of 2,373 dental encounters, including 84 (3.5%) prophylactic prescriptions, and 80 (3.4%) treatment prescriptions. A decrease of 2.3% was seen with overall prescribing rates (9.2% to 6.9%).

CONCLUSIONS: Through implementation of new order-set menus and education of dental staff, overall prescribing of antibiotics was decreased, and antibiotic treatment duration was lessened.

Video Presentation: <https://youtu.be/v5Pj9dk4b-g>

I RISK OF SECONDARY INFECTIONS IN CRITICALLY ILL COVID POSITIVE PATIENTS: A RETROSPECTIVE STUDY

Room J

Presenters: Ca Truong

TITLE: RISK OF SECONDARY INFECTIONS IN CRITICALLY ILL COVID-19 POSITIVE PATIENTS: A RETROSPECTIVE STUDY

AUTHORS: Ca Truong, Jana Mills, Brook Jacobs

OBJECTIVE: Estimate the incidence of secondary infections in patients with COVID-19.

SELF ASSESSMENT QUESTION: Identify predominant organisms and risk factors leading to secondary infections in ICU COVID-19 patients.

BACKGROUND: Severe COVID-19 is associated with intensive care unit (ICU) admission. Historically, increased secondary infections have led to significantly worse prognosis. While secondary infections with bacterial, viral, and other pathogens are well-described in influenza and other respiratory viral illnesses, characteristics and risk factors associated with secondary infections in COVID-19 patients have not been described. The purpose of this study was to determine the incidence of secondary infections in COVID-19 patients in a 32-bed medical-surgical ICU.

METHODOLOGY: This was a retrospective study of ICU patients ≥ 18 years of age, hospitalized with COVID-19 from March to November 2020. Patients were considered to have secondary infections if they had positive blood, sputum, and/or urine cultures with clinical markers of infection after a positive COVID test. Mortality, length of stay, mechanical ventilation, central lines, and steroids were secondary endpoints studied.

RESULTS: Among 175 ICU COVID-19 patients, 60 patients had at least one positive culture with clinical markers of infection. Gram-negative pathogens were commonly isolated in the respiratory and urine cultures, specifically *Pseudomonas aeruginosa* in respiratory and *E. coli* in urine cultures. Gram-positive isolates predominated in blood cultures, particularly *Enterococcus faecalis*. As expected, most of fungal isolates were found in urine cultures. Mortality rate among ICU COVID-19 patients with positive cultures and secondary infections was 51.7%.

CONCLUSIONS: ICU patients hospitalized with COVID-19 had a high incidence of secondary infection and mortality. Severe COVID disease, invasive respiratory support, steroid use, and central line presence seem to be risk factors for these patients.

L Evaluation of AUC/MIC Dosing Strategies at a Community Teaching Hospital

Room E

Presenters: Jacqueline Downey

Title: Evaluation of AUC/MIC Dosing Strategies at a Community Teaching Hospital

Author: Jacquie Downey, Jessica Starr, Hillary Holder, Kelsey Knorr

Presentation Objective: Analyze the feasibility of implementing an AUC/ MIC dosing protocol and subsequent effects in a community teaching hospital

Self-Assessment Question: Is it feasible to implement an AUC/MIC based dosing strategy at a community teaching hospital?

Purpose/Background: In April of 2020, the ASHP, IDSA, and SIDP guidelines for vancomycin were updated to recommend shifting to AUC/MIC based dosing strategies. Research published since the initial guideline in 2009 suggests that trough monitoring may fail to estimate a patient's true AUC up to 25 percent of the time. Additionally, use of AUC/MIC based dosing strategies may decrease the occurrence of nephrotoxicity. The purpose of this study is to evaluate an AUC/MIC dosing protocol piloted in a medical floor of the hospital.

Methods: From October 1, 2020 through November 1, 2020, all patients with an order for vancomycin in a predetermined area were screened for inclusion to receive AUC/MIC dosing with a goal concentration of 400-600. AUC/MIC was calculated using online calculators. The primary endpoint was the percent of patients who achieved target AUC/MIC of 400-600 at any point during vancomycin therapy. Key secondary endpoints include number of patients who are appropriately dosed with AUC/MIC method based on appropriate lab draws and number of patients who achieve a therapeutic trough.

Results: 22 patients were included in our analysis. 13 patients (59%) achieved a therapeutic AUC/MIC at any point in therapy, and 9 of these patients (69%) had a trough that would have been subtherapeutic. 9 patients (41%) achieved a therapeutic trough, and 6 patients (27%) had all vancomycin levels drawn appropriately.

Conclusions: Implementation of an AUC/MIC dosing strategy is feasible but presents new challenges and requires coordination between multiple departments.

N COMPARING THE SAFETY, EFFICIENCY, AND COST OF INTRAVENOUS (IV) PUSH VS PIGGYBACK LEVETIRACETAM AT A COMMUNITY TEACHING HOSPITAL

Presenters: Samuel Menasie

TITLE: COMPARING THE SAFETY, EFFICIENCY, AND COST OF INTRAVENOUS (IV) PUSH VS PIGGYBACK LEVETIRACETAM AT A COMMUNITY TEACHING HOSPITAL

AUTHORS: Samuel Menasie, Keith Johnson

OBJECTIVE: Describe the potential impact of implementing hospital-wide IV push levetiracetam.

SELF ASSESSMENT QUESTION: What is one of the potential outcomes of implementing hospital-wide IV push levetiracetam administration?

BACKGROUND: Compare the efficiency, safety, and cost of both IV push and IV piggyback levetiracetam administration in patients receiving their first dose at a community teaching hospital.

METHODOLOGY: After implementing hospital-wide IV push levetiracetam administration, this single-center cohort study included patients 18 years or older who received at least 1 IV piggyback dose pre-implementation (October 26th, 2019-January 26th, 2020) or at least 1 IV push dose post-implementation (October 26th, 2020-January 26th, 2021). IV push doses less than or equal to 1 gram were administered undiluted, and doses greater than 1 gram up to a maximum of 3 grams were diluted with normal saline or dextrose 5 percent in sterile water. The primary outcome was the time from order verification to medication administration. Secondary outcomes include drug cost per month, rate of significant change in blood pressure, and incidence of infusion site reactions.

RESULTS: In this IRB-exempt study, 75 patients were included in the pre-implementation phase, and 72 patients were included post-implementation. The post-implementation group showed a 23 minute faster average verification to administration time compared to the pre-implementation group. More patients in the pre-implementation group experienced a significant change in blood pressure. In addition, only 1 IV piggyback levetiracetam patient was found to have experienced an infusion site reaction compared to 0 patients in the post-implementation group. There was also a 19.6% difference in cost post-IV push levetiracetam implementation.

CONCLUSIONS: Although unable to achieve a statistically significant difference, IV push administration in the post-implementation group showed a faster time from average verification to administration. More research will be necessary to demonstrate a statistically significant difference in average verification to administration time as well as safety outcomes and cost.

Copy & Paste Video Link: <https://www.youtube.com/watch?v=nxEAfofCkr4>

O Evaluation of granulocyte colony-stimulating factor use in the outpatient infusion center setting: a multicenter chart review

Room A

Presenters: Timothy Coyle

TITLE: Evaluation of granulocyte colony-stimulating factor use in the outpatient infusion center setting: a multicenter chart review

AUTHORS: Timothy Coyle, Sonia Thomas

OBJECTIVE: To evaluate the use of pegfilgrastim and filgrastim and their biosimilars in the outpatient infusion center setting.

SELF ASSESSMENT QUESTION: For a patient receiving chemotherapy considered intermediate risk, which of the following is not a risk factor for febrile neutropenia?

- a) Age > 65 years receiving full dose chemotherapy
- b) Bone marrow involvement by tumor
- c) Renal impairment (CrCl < 50 mL/min)
- d) BMI > 25 kg/m²
- e) Prior chemotherapy or radiation

BACKGROUND: Neutropenic fever remains a serious complication of oncologic chemotherapy due to the myelosuppressive effects of most antineoplastic chemotherapy regimens. Since 1991, granulocyte colony-stimulating factors (G-CSF) have been effective in reducing the risk of developing febrile neutropenia and decreasing its duration. However, strong benefits are not seen in patients with low risk of febrile neutropenia, and use of G-CSFs in these patients may incur excessive cost and possible adverse effects.

The purpose of this study is to evaluate the use of pegfilgrastim or filgrastim in the setting of multiple outpatient infusion centers to determine if the use of G-CSF medications are being utilized in accordance with the National Comprehensive Cancer Network (NCCN) guidelines for primary or secondary prevention of febrile and non-febrile neutropenia due to chemotherapy.

METHODOLOGY: This is a multi-center, retrospective, chart review over a 3-month period. The data was collected from patients seen at any of the Northwest Georgia Oncology Centers (NGOC) locations from June 1, 2020 to August 31, 2020. The sample size was 283 patients over this time period. Patients aged 18 and older with a cancer diagnosis who received pegfilgrastim, filgrastim, or a biosimilar were included in the analysis. The patient charts were reviewed for the presence of chemotherapy regimens that were administered over this time period that were considered high-, intermediate-, or low-risk for febrile neutropenia. For patients with chemotherapy regimens not considered high-risk, patient-specific risk factors were evaluated to determine if G-CSF medications were used in accordance with the NCCN guidelines.

RESULTS: A total of 283 patients met the inclusion criteria and were evaluated. The average patient age was 60 years old, and the patient population was 75.3% female. Of the patients evaluated, 268 out of 283 patients (95%) were prescribed and administered pegfilgrastim, filgrastim, or a biosimilar in accordance with the NCCN guidelines for prevention of neutropenia or febrile neutropenia due to chemotherapy.

CONCLUSIONS: We found that over this time period, the majority of G-CSF medication administrations were used in accordance with the NCCN guidelines in the setting of oncology patients within the Northwest Georgia Oncology Centers healthcare system.

B AN EVALUATION OF COPD EXACERBATIONS AFTER UTILIZING THE IN-CHECK DIAL G16 DEVICE

Room K

Presenters: Megan Fonteno

TITLE: AN EVALUATION OF COPD EXACERBATIONS AFTER UTILIZING THE IN-CHECK DIAL G16 DEVICE

AUTHORS: Megan Fonteno, Emily Brinkman

OBJECTIVE: Describe differences among inhaler types and appropriate technique for COPD treatment.

SELF ASSESSMENT QUESTION: Does appropriate inhaler therapy and technique affect hospital readmission rates?

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is an irreversible chronic condition that interferes with a patient's normal breathing. COPD exacerbations requiring hospitalization from improper inhaler technique or patient confusion are common. The In-Check dial device is a coaching tool to train patients to make an inspiratory flow effort consistent with the requirements of their specific device. The device can also help determine if patients have enough inspiratory flow effort to adequately obtain medication from dry powder inhalers. The purpose of this study is to determine whether evaluating patient inhaler technique and inspiratory flow with the In-Check Dial G16 will have an effect on 30-day readmissions for COPD exacerbations.

METHODOLOGY: A retrospective chart review was conducted of adult patients seen in a transitional care clinic at local community hospital with COPD between 8/1/19-12/1/19 (pre-intervention) and 8/1/20-12/1/20 (post-intervention). Patients were included if they were 18 years and older and had an ICD-10 code pertaining to COPD. The primary objective was to determine the number of hospital readmissions due to COPD exacerbations in patients who received education using the In-Check Dial G16 vs. patients who did not. Secondary objectives included comparison of inhaler device changes (DPI to MDI) and cost savings utilizing patient assistance programs.

RESULTS: In progress

CONCLUSIONS: In progress

B Assessment of appropriate guideline-directed A1C goals in elderly diabetic patients who are managed by primary care providers

Presenters: Erika McDonald

TITLE: Assessment of appropriate guideline-directed A1C goals in elderly diabetic patients who are managed by primary care providers

AUTHORS: Erika McDonald, Whitney Narramore, Michael Knauth, Stephanie Grimes, Susan Roberts

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify patient characteristics that warrant relaxed A1C goals in elderly diabetic patients.

SELF ASSESSMENT QUESTION: List patient characteristics that should be considered when setting treatment goals for glycemia in elderly patients with diabetes.

BACKGROUND: This IRB-approved, retrospective chart review is intended to determine the percentage of elderly diabetic patients without guideline directed A1C goal therapy. Recently, a third-party payor shared that 46.5% of members have an A1C of $\leq 7\%$ with 7% of members being below 6%. This indicates we may be overtreating our patients to avoid upper limits of performance metrics and unfavorable CMS ratings. Per ADA guidelines, hemoglobin A1C goals for elderly patients must be determined in a patient-centered fashion, after assessing medical, psychological, functional and social characteristics, since the effects of intensive glycemic control may outweigh the benefit. The results will be compared to the literature to determine if primary care providers are managing elderly diabetic patients appropriately. Additionally, this study will perform a financial analysis of anti-diabetic medication costs and determine rates of hypoglycemia resulting in emergency room visits and hospitalizations.

METHODOLOGY: Patients will be identified from reports collected from a large third-party payor. Charts will be reviewed and information to be collected for each patient includes chronic diseases, A1C, anti-diabetic medications prescribed, hospitalizations and ER visits related to hypoglycemia, and indicators of functional status collected from annual wellness exam questionnaires. Utilizing this information, appropriate A1C goals will be determined referencing American Diabetes Association's Standard of Medical Care in Diabetes-2020, which will be compared to reported A1Cs. Rates of hypoglycemia resulting in ED visits and hospitalizations will also be compared between groups. Data regarding antidiabetic medications prescribed will be used to perform a cost analysis to demonstrate the avoidable cost of inappropriate aggressive therapy.

RESULTS: Seventy-five percent of elderly diabetic patients with an A1C $\leq 7\%$ were treated in a manner that agrees with ADA guidelines. Twenty-five percent of patients were possibly overtreated with aggressive therapy. Complex patients aggressively treated had an average increased cost of antidiabetic medications of approximately \$530 monthly.

CONCLUSIONS: Twenty-five percent of patients were possibly overtreated with aggressive therapy. However, this is lower than what has been reported in the literature. Additionally, a large cost savings opportunity was found for complex patients if providers relax A1C goal therapy.

LINK TO

PRESENTATION: <https://tennessee.zoom.us/rec/share/fad8mdwDXMvO7haZnJgHRifRGAjA9CL1DR4ohGHaVPvP56LCI6-xTN-bulnKaBH.kI91SVRWI-2aFQ3y?startTime=1618507180000>

Presenters: Dana Crawford

TITLE: Pandemic preparedness among community pharmacists across South Carolina

AUTHORS: Dana Crawford, Tessa Hastings, Patti Fabel, Bryan Love, Gene Reeder

OBJECTIVE: Develop interventions within community pharmacies to create and improve pandemic preparedness

SELF ASSESSMENT QUESTION: What is one way that community pharmacists can improve their response during a pandemic situation?

BACKGROUND: As vital members of interdisciplinary healthcare teams, pharmacists have essential roles in patient care and public health. The COVID-19 pandemic has highlighted the important role of pharmacists on the frontlines and the importance of understanding pharmacy pandemic preparedness. However, limited previous research has explored U.S. pharmacists' experiences preparing for pandemic response. Thus, the purpose of this project is to determine South Carolina community pharmacists' knowledge, perceptions, and willingness to participate in outbreak response efforts. This data will support our long-term goal of improving pharmacist preparedness to respond in pandemic situations.

METHODOLOGY: This is a descriptive cross-sectional survey that will include actively practicing community pharmacists, specifically pharmacists in charge, throughout the state of South Carolina. A list of active pharmacists' addresses and phone numbers has been obtained from the South Carolina Board of Pharmacy. This survey will be distributed as part of a larger study of South Carolina pharmacists. A random sample of 60% of community pharmacists will be invited to participate in the needs assessment, with an approximate expected response rate of 30%. Pharmacists will receive a custom postcard with a unique QR link to the online survey. Any returned postcards due to incorrect mailing details will be monitored and additional pharmacists will be identified as replacements should the returned mail reach 25%. Additional recruitment methods may include telephone calls, social media posts, and SC pharmacy organization advertisements as needed. The survey will be hosted online using Qualtrics. Domains of the survey include participant demographics, baseline pandemic knowledge, and pandemic practice. The questionnaire will be pre-tested among a sample of five pharmacists prior to distribution.

Completed surveys will be reviewed weekly during the collection period. De-identified data will be analyzed using the IBM Statistical Package for Social Science (SPSS), and results for non-free response questions will be summarized by descriptive statistics. For the secondary objective evaluating differences in pandemic preparedness between chain retail pharmacists and independent pharmacists, descriptive statistics will also be used. Both descriptive statistics and qualitative descriptions will be used to identify factors associated with pandemic preparedness and willingness to participate in outbreak response efforts. For free-response questions, answers will be qualitatively analyzed and themes will be reported in the results.

RESULTS: South Carolina community pharmacists have limited experience and knowledge of pandemics, but about 30% of respondents have a formal plan or agreement with local health departments to prepare for the COVID-19 vaccine. All respondents have protocols in the pharmacy and PPE available for staff and patient purchase to ensure staff and patient safety.

CONCLUSIONS: Pandemic preparedness plans and formal training are limited among community pharmacies in South Carolina. Willingness to participate in outbreak efforts, though, is noted by pharmacy protocols to protect staff and patients and by the creation of formalized plans and agreements with local health departments in preparation for the COVID vaccine. Pandemic preparedness plans may increase readiness and ability to combat pandemic situations, but further studies are needed to assess their impact.

Presentation Link: <https://youtu.be/rDM6u71EiCc>

R Evaluation and implementation of recombinant factor VIIa criteria for use and dosing strategy in a large community hospital

Room D

Presenters: Alexis Skarupa

TITLE: Evaluation and implementation of recombinant factor VIIa criteria for use and dosing strategy in a large community hospital

AUTHORS: Alexis Skarupa, Jerry Robinson, Kate Adcock

OBJECTIVE: Describe the appropriate use of recombinant factor VIIa (NovoSeven) in cardiothoracic surgery and trauma patients.

SELF ASSESSMENT QUESTION: Why is a lower dose of recombinant factor VIIa (NovoSeven) recommended in cardiothoracic surgery patients?

BACKGROUND: Recombinant factor VIIa (NovoSeven) is used for refractory bleeding after cardiac surgery in non-hemophiliac patients and in severe trauma patients with massive bleeding. At this institution, the criteria for use had not been updated to reflect current practices. Recent evidence recommends the use of a lower dosing strategy of NovoSeven in post-cardiothoracic surgery patients to decrease adverse events. The purpose of this study is to update the criteria for use of NovoSeven to more closely reflect current practices, implement a lower dosing strategy in post-cardiothoracic surgery patients, and evaluate these changes.

METHODOLOGY: Data from patients who received at least one dose of NovoSeven from January 2019 to December 2020 was collected and evaluated to assess adherence to current criteria for use and occurrence of adverse events. Cardiothoracic Surgery was the service group most likely to not meet criteria when prescribing NovoSeven. After discussion with Trauma and Cardiothoracic Surgery, two separate criteria for use were created to meet the needs of each patient population. A new lower dosing strategy was adopted by the cardiothoracic surgeons and has been implemented. Data was collected and evaluated to assess the adherence to the criteria for use and the efficacy and safety of the new dosing strategy.

RESULTS: Prior to implementation, there were 39 total patients included in the study. There were 48 doses given and 77% of those doses met criteria the defined criteria for use. CV Surgery had a 38% compliance rate while Trauma had a 90% compliance. After the new criteria for use was implemented there were 12 total patients given 17 doses. 94% of the doses met the new criteria. The new CV Surgery dose was given one time. There were 11.7% thrombotic ADRs throughout the duration of the study.

CONCLUSIONS: The criteria for use for NovoSeven was updated to reflect the current practices of trauma and cardiovascular surgeons. The adverse even rate was similar to other studies. All dosing included in the study is off-label. There was no apparent correlation between NovoSeven administration and death.

R Guanfacine to Aid in Weaning Dexmedetomidine for Sedation in the ICU

Room B

Presenters: Mary Medley

TITLE: Guanfacine to Aid in Weaning Dexmedetomidine for Sedation in the ICU

AUTHORS: Mary Medley, Adam Wiss, Jordan Tullos

OBJECTIVE: The purpose of this study was to analyze guanfacine and dexmedetomidine practices for sedation in the ICU.

SELF ASSESSMENT QUESTION: Is there a role for guanfacine to transition patients off dexmedetomidine?

BACKGROUND: This was a single-center, retrospective chart review of adults treated with dexmedetomidine and guanfacine for sedation in the ICU between January 2017 and September 2020. Those who received less than two doses of guanfacine, received guanfacine prior to initiating dexmedetomidine, were being treated for alcohol withdrawal, or were receiving paralytics were excluded. The primary objective was to evaluate response to guanfacine at 24 hours. Response was defined as discontinuation of dexmedetomidine within 24 hours of initiating guanfacine without the need for a change in ancillary sedatives. Secondary objectives included rates of hypotension and bradycardia.

METHODOLOGY: This was a single-center, retrospective chart review of adults treated with dexmedetomidine and guanfacine for sedation in the ICU between January 2017 and September 2020. Those who received less than two doses of guanfacine, received guanfacine prior to initiating dexmedetomidine, were being treated for alcohol withdrawal, or were receiving paralytics were excluded. The primary objective was to evaluate response to guanfacine at 24 hours. Response was defined as discontinuation of dexmedetomidine within 24 hours of initiating guanfacine without the need for a change in ancillary sedatives. Secondary objectives included rates of hypotension and bradycardia.

RESULTS: Forty-eight patients were included. Twenty-one patients (44%) were successfully weaned off dexmedetomidine at 24 hours after initiating guanfacine. Of the 27 nonresponders, 9 had an increase in psychoactive medication(s) and 18 patients continued on dexmedetomidine at 24 hours. In nonresponders, the median time to dexmedetomidine discontinuation was 73 hours [IQR, 30-111]. Hypotension occurred in 3 (14%) responders and 3 (11%) nonresponders ($p > 0.99$). Bradycardia occurred in 1 (4%) nonresponder.

CONCLUSIONS: Guanfacine may be a safe and effective strategy to assist in transitioning patients off of prolonged dexmedetomidine infusions.

R The use of albumin in combination with furosemide vs. furosemide alone for de-resuscitation following sepsis or septic shock in critically-ill hypoalbuminemic adults

Room C

Presenters: Michael Long

TITLE: The use of albumin in combination with furosemide vs. furosemide alone for de-resuscitation following sepsis or septic shock in critically-ill hypoalbuminemic adults

AUTHORS: Michael Long, Eric Shaw, Stephanie Lesslie

OBJECTIVE: Assess if the addition of albumin to furosemide provides benefit.

SELF ASSESSMENT QUESTION: Does the addition of albumin to furosemide for de-resuscitation following sepsis or septic shock provide benefit?

BACKGROUND: Fluid therapy is a common treatment in the management of critically ill patients. While fluids are important in sepsis and septic shock management, fluid overload has been associated with poor outcomes in critically ill adults. This study evaluated the use of albumin to augment furosemide in de-resuscitation of the hypoalbuminemic critically ill patient as conflicting data have been published regarding its use in this patient population.

METHODOLOGY: Adult patients admitted to the ICU from July 1, 2015 to June 30, 2020 with hypoalbuminemia as defined as serum albumin < 2.5 g/dL and administered furosemide with albumin or furosemide alone for de-resuscitation following sepsis or septic shock were included. The primary outcome evaluated for this study was the change in net fluid balance after 5 days of de-resuscitation.

RESULTS: Eighty patients were included in this IRB-approved study. This study found that the addition of albumin to furosemide did not provide a significant difference in the change in net fluid balance after 5 days, with the albumin group having a mean + SD of 6,316.6 + 5,632.6 mL vs. 6,137.0 + 5,977.5 mL in the furosemide only group ($p = 0.890$). This study also found no statistically significant difference in cumulative urine output or net fluid balance at time points 6, 12, 24, 48, 72, 96, and 120, renal replacement therapy, ICU length of stay, mortality, and duration of mechanical ventilation.

CONCLUSIONS: The addition of albumin to furosemide for de-resuscitation following sepsis or septic shock in patients with hypoalbuminemia was not associated with an improvement of net fluid balance. There were no differences in secondary outcomes between groups.

Presentation link:

https://static.sched.com/hosted_files/2021southeasternresidency/b2/SERC%20presentation%20final.mp4

G Pharmacist identification of older patients' priorities in a home-based primary care program

Room F

Presenters: Aparna Krishnamurthy

TITLE: Pharmacist identification of older patients' priorities in a home-based primary care program

AUTHORS: Aparna Krishnamurthy, Autumn Neff, Emma Feder, Casey Tak, Tasha Woodall

OBJECTIVE: Assess patient perspectives on having initial priorities identification conversations with pharmacists on a home-based primary care (HBPC) team

SELF ASSESSMENT QUESTION: How can we better cultivate a patient-centered approach in healthcare?

BACKGROUND: Patient Priorities Care (PPC) seeks to improve care quality for older adults with multiple chronic conditions by aligning clinicians' decisions with patients' values and healthcare priorities. PPC can help ease treatment burden and benefit other patient-centered outcomes. This study seeks to describe: 1) pharmacist-led implementation of PPC within a community HBPC program; and 2) the taxonomy of goals most important to this population.

METHODOLOGY: This is a prospective, single group observational study. Patients were excluded if they were non-English speaking or had barriers with telecommunication.

PPC utilizes a structured interview to explore patients' core values, specify realistic, actionable health outcome goals, and identify a "specific ask" – one thing they want most to focus on to improve their health. Four pharmacists who were trained to facilitate these conversations interviewed patients and/or caregivers to identify priorities. Pharmacists tracked time to complete conversations and recorded patients' or caregivers' responses to three questions designed to capture their reaction to the discussion, gauge their degree of satisfaction or dissatisfaction with the conversation, and solicit their perceptions about discussing healthcare priorities with the pharmacist in particular. Patients' goals were also categorized by value.

RESULTS: Priorities identification conversations were completed for 21 patients. Median conversation length was 30 minutes. Overall average satisfaction with conversations was 4.6/5. Ninety percent of patients considered it appropriate to have PPC conversations with a pharmacist, and 71% believed it was very important/beneficial to share their values and goals with their providers. The predominant value represented by patients' goals was "managing health," followed by "functioning/self-sufficiency."

CONCLUSIONS: Patients found PPC conversations to be a positive experience. Goals were most frequently related to managing symptoms and maintaining independence.

LINK TO PRESENTATION: <https://youtu.be/6I7xulbW19E>

I Impact of discharge antibiotic prescription review on appropriate empiric antibiotic prescribing in a community hospital emergency department

Room H

Presenters: Anna Felmer

TITLE: Impact of discharge antibiotic prescription review on appropriate empiric antibiotic prescribing in a community hospital emergency department

AUTHORS: Felmer AC, Simpson H, Kilburn J, Malloy V, Thakkar D, Crawford M, Bowers RD

OBJECTIVE: Identify frequent interventions made by pharmacists for antibiotic prescriptions upon discharge from a community hospital emergency department.

SELF ASSESSMENT QUESTION: Which type of intervention do pharmacists most frequently recommend for discharge antibiotic prescriptions in a community hospital emergency department?

BACKGROUND: Antimicrobial stewardship efforts in the emergency department are generally focused towards the inpatient setting. As half of outpatient medical care occurs in emergency departments, we sought to implement an outpatient-focused antimicrobial stewardship effort. The aim of this study is to evaluate the impact of a pharmacist prescription review process on improving appropriate empiric antibiotic prescribing at discharge from the emergency department at a community hospital.

METHODOLOGY: In October 2020, a prospective discharge antibiotic prescription review process was implemented in the emergency department of a large community hospital. A review was implemented to analyze prescriptions for two months before the new service implementation and two months after. Prescriptions were excluded if the patient was incarcerated, left against medical advice, or laboratory values were missing to determine if the prescription was appropriate. Prescriptions that met initial screening criteria during each timeframe were randomly selected to include 260 prescriptions in each group. The primary endpoint was rate of appropriate empiric antibiotic prescriptions based on indication, drug, dose, and duration. Time in the emergency department and 30-day revisit rates were also compared between the groups. Chi-squared test and unpaired t-tests were utilized for statistical analysis.

RESULTS: Significantly more antimicrobial prescriptions were appropriate in the post-intervention group compared with the pre-intervention group (80.0% vs. 58.4%, p-value <0.0001). Patient time in the emergency department was not significantly different between the two groups (P-value = 0.1636, 95% CI [-69.81 to 11.84]).

CONCLUSIONS: A prospective prescription review process was effective in increasing the rate of appropriate antibiotic prescriptions written for patients upon discharge from a large community hospital emergency department without increasing duration of visit.

I The Efficacy and Safety of Remdesivir, Convalescent Plasma, and Dexamethasone in the Treatment of Patients with COVID-19

Room I

Presenters: Saad A. Aldosari

TITLE: The Efficacy and Safety of Remdesivir, Convalescent Plasma, and Dexamethasone in the Treatment of Patients with COVID-19

AUTHORS: Saad A. Aldosari, Matthew W. Mcallister, Natalie Ramsey and Deanne Tabb

OBJECTIVE: The primary objective is to describe the clinical efficacy and safety of remdesivir, dexamethasone, and convalescent plasma versus supportive care in the treatment of patients with COVID-19.

SELF ASSESSMENT QUESTION: Based on the current literature, what role does convalescent plasma have in the treatment of patients with COVID-19?

BACKGROUND: The purpose of this study is to evaluate the efficacy and safety of the triple therapy including remdesivir, convalescent plasma, and dexamethasone compared to supportive care in the treatment of hospitalized patients with COVID-19.

METHODOLOGY: We performed a retrospective chart review of 260 patients with COVID-19 admitted to Piedmont Healthcare between March 1, 2020 to August 31, 2020. The primary outcome assessed is the time to clinical improvement within 28 days after inclusion. Clinical improvement is defined as a two-point reduction in patients' admission status on a six-point ordinal scale, or live discharge from the hospital, whichever came first. The secondary outcomes are all-cause mortality at 14 and 28 days, time of hospital stay in days, severity score at 14 and 28 days from time of inclusion, changes in inflammatory biomarkers including fibrinogen, D-dimer, ferritin and C-reactive protein (CRP) at 14- and 28-days and adverse drug reactions associated with the treatment. An excel spreadsheet is utilized to collect data for primary and secondary outcomes.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Tyler Merritt

TITLE: Urea for the Treatment of Acute Hyponatremia

AUTHORS: Tyler Merritt, Desirae Lindquist, Brianna Alexander, Laura Poveromo

OBJECTIVE: To determine the efficacy of urea, in combination with standard therapies, in the non-ICU management of acute hyponatremia.

SELF ASSESSMENT QUESTION: Based on its mechanism of action, which manifestation of hyponatremia is Urea contraindicated in?

a) Hypovolemic hyponatremia

b) Euvolemic hyponatremia

c) Hypervolemic hyponatremia

BACKGROUND: Hyponatremia, defined as a serum sodium ≤ 135 mEq/L, is the most common electrolyte abnormality encountered in clinical practice, with approximately 15-30% of hospitalized patients experiencing low serum sodium. Treatment strategies currently utilized in the management of hyponatremia are confounded by the lack of comparative, quality clinical efficacy data for each, the substantial cost burden for patients prescribed vasopressin antagonists, poor patient adherence to interventions like fluid restriction, and barriers to administration of certain treatments. A novel agent, urea, has been identified as a possible treatment of hyponatremia. To further define urea's role in the treatment of hyponatremia, this study aims to assess urea's effectiveness in the non-ICU management of acute hyponatremia due to any cause.

METHODOLOGY: In this multicenter, retrospective, cohort analysis, the electronic health record (EHR) was used to identify patients admitted to any of the three Duke University Health System hospitals between September 2017 and October 2020 and who had a diagnosis of hyponatremia. Patients were included in analysis if they were ≥ 18 years of age, had a serum sodium ≤ 130 mEq/L at the time of admission, and receipt of one or more doses of oral urea during the hospital encounter.

RESULTS: Due to low rate of enrollment, inferential statistical analysis was not performed. Though no definitive conclusions can be drawn, the data from this analysis suggests that there is no numerical difference in sodium values between the urea plus standard therapies group versus the standard therapies group alone 24 hours after treatment initiation. There was, however, a numerically greater number of patients with normalized serum sodium values in the urea + standard therapies group at discontinuation, discharge, or 7 days.

CONCLUSIONS: Urea is a reasonable treatment option in the non-ICU management of hyponatremia when combined with other therapies commonly used to mitigate hyponatremia.

O Effects of Thyroxine (T4) Supplementation on Progression-Free Survival in Metastatic Colorectal Cancer

Room A

Presenters: Celia Curtis

TITLE: Effects of Thyroxine (T4) Supplementation on Progression-Free Survival in Metastatic Colorectal Cancer

AUTHORS: Celia Curtis, Aseala Abousaud, Christine Davis, Jeffrey Switchenko, Sujata Kane, Bassel El-Rayes

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify whether supplementation with T4 affects outcomes, such as progression-free survival, in metastatic colorectal cancer patients.

SELF ASSESSMENT QUESTION: How does T4 promote cancer cell growth?

BACKGROUND: The thyroid hormone thyroxine (T4) has been implicated in promoting tumor progression. T4 signaling has been shown to affect cancer cell growth in part by influencing gene expression involved in cell proliferation and angiogenesis. Previous studies have shown that T4 induces proliferation of cancer cells in colorectal cancer (CRC), glioblastoma, non-small cell lung cancer, triple negative breast carcinoma, ovarian carcinoma, myeloma, and renal cell carcinoma. The primary purpose of this study is to evaluate whether supplementation with T4 affects outcomes, such as progression-free survival, in metastatic CRC patients. Additional objectives include comparing disease control (response to treatment or stable disease) and differences in overall survival. This study would add to the literature on the impact of thyroid supplementation with T4 on cancer patients, specifically within the metastatic CRC patient population.

METHODOLOGY: This study is a single-center, retrospective chart review including patients at Winship Cancer Institute with metastatic colorectal cancer who received at least one cycle of FOLFOX or FOLFIRI while taking levothyroxine during August 1, 2010 to June 30, 2020. Patients who received immunotherapy or were taking any of the following thyroid supplements: desiccated thyroid extract (T3/T4), Liotrix (T3/T4), Thyrolar (T3/T4), Liothyronine (T3), Cytomel (T3) will be excluded. Controls will be matched 3:1 to patients to assess the difference in progression-free survival between case-control matched groups. Survival endpoints will be estimated using the Kaplan-Meier method.

RESULTS: Between the case-control comparisons there were no significant differences except dose adjustments (p-value 0.003). Median progression-free survival was 7.1 months in the cases (range 4.1, 15.8) vs. 11.5 in the controls (range 8, 14); p-value 0.2192. Median overall survival was 22.6 months from treatment start (range 14.3, 66.2) for the cases, which was significantly less than the controls (N/A; range 53.7, N/A); p-value <0.001.

CONCLUSIONS: Overall, T4 supplementation appears to affect overall survival in metastatic CRC patients; further studies are warranted to confirm effects on progression-free survival and overall survival.

B Evaluation of a school of pharmacy and Veterans Affairs (VA) partnership to provide a telepharmacy-based population health clinic

Room J

Presenters: Jenna Nehls

TITLE: Evaluation of a school of pharmacy and Veterans Affairs (VA) partnership to provide a telepharmacy-based population health clinic

AUTHORS: Jenna R. Nehls, Courtney E. Gamston, Pamela Stamm, Kimberly Braxton Lloyd

OBJECTIVE: At the conclusion of my presentation, one will be able to describe how pharmacists can use population health dashboards to improve clinical outcomes.

SELF ASSESSMENT QUESTION: Name two examples of interventions that pharmacists provide based on population health dashboards?

BACKGROUND: The tools of population health management are used to improve clinical outcomes for individuals not meeting specific health goals. National quality measures are commonly used to identify measures for targeted intervention. A pharmacy school and a VA collaborated to improve patient care through the establishment of a pharmacist-led population health clinic. The purpose of this study is to determine the impact of interventions resulting from implementation of the clinic.

METHODOLOGY: A retrospective chart review of patients with diabetes identified during the 2019-2020 academic year with an A1c > 9%, not taking a statin medication, and/or needing annual labs was conducted. Primary outcomes include percentage of patients completing a diabetes management appointment with a clinical pharmacist, initiating a statin medication, and/or receiving annual labs after the population health interventions. Descriptive statistics and results of pre-/post-data utilizing paired t-test analyses are reported.

RESULTS: There were 36 patients identified from the A1c > 9% dashboard with an average A1c of 11.2%. Of these, 15 were referred to meet with a clinical pharmacist and 12 patients completed at least one appointment. The post-appointment A1c significantly decreased to 9.2% (p=0.04). Additionally, 184 patients not taking a statin medication were identified, 53 of which were eligible for a statin medication, and 8% initiated statin therapy. There were 80 patients identified that were due for annual labs and 17.5% completed labs after intervention.

CONCLUSIONS: Pharmacists are able to make a significant clinical impact using population health dashboards for patients with diabetes including A1c lowering, statin initiation, and completion of laboratory testing.

Presentation: https://docs.google.com/presentation/d/1_C6Mli8xpzs4qmLn1A_dWx00z5Tt6mklCZolnmxz6yl/edit?usp=sharing

B Persistence, Discontinuation or Switch of Disease-Modifying Therapies in Patients with Relapsing Multiple Sclerosis at a Health-System Specialty Pharmacy

Room K

Presenters: Miranda Kozlicki

TITLE: Persistence, Discontinuation or Switch of Disease-Modifying Therapies in Patients with Relapsing Multiple Sclerosis at a Health-System Specialty Pharmacy

AUTHORS: Miranda Kozlicki, Brandon Markley, Nisha Shah, Josh DeClercq, Leena Choi, Autumn Zuckerman

OBJECTIVE: Evaluate SP roles in DMT management. List reasons for DMT discontinuation/switch.

SELF ASSESSMENT QUESTION: How can pharmacists intervene during DMT discontinuation/switch?

BACKGROUND: Limited data exists on long-term persistence and reasons for discontinuation or switch of disease-modifying therapy (DMT) in patients with relapsing multiple sclerosis (RMS).

METHODOLOGY: We performed a retrospective analysis of adult patients with RMS who had ≥ 2 fills of DMT from May–October 2017. Data from first DMT fill ('index') through 36 months was used to assess persistence, using time to first discontinuation (index DMT stopped and no DMT restarted for >60 days) or switch (new DMT started within 60 days of last index DMT fill). We assessed Specialty Pharmacist (SP) involvement in and reasons for index DMT discontinuation/switch. Descriptive statistics were used to summarize sample characteristics and outcomes. The Kaplan-Meier estimation method was used to estimate probability of remaining persistent.

RESULTS: We included 543 patients (74% female, 84% white, mean age 49 ± 11 years): 193 remained on index DMT, 93 discontinued index DMT, 136 switched therapy, 93 transferred care, 21 were lost to follow-up, and 7 died.

Probability of remaining persistent through 36 months was 0.51 (95% confidence interval 0.46-0.56). Of patients who discontinued index DMT, median time on therapy was 514 days (interquartile range [IQR] 203, 722). Of patients who switched index DMT, median time on index DMT was 415 days (IQR 237, 623). Reasons for discontinuation included: side effects (32%), stable disease (13%), and prescriber-mandated hold (12%). Reasons for switch included: insurance change (36%), clinical decline (32%), and lack of benefit (10%). SPs intervened in 67% of discontinuations and 77% of switches, most commonly to provide education, establish follow-up care or secure insurance approval.

CONCLUSIONS: Changes in DMTs for RMS are common. Integrated SPs play a crucial role in ensuring safe transition off or between DMTs.

Y Assessing the Impact of Pharmacist-Initiated Education on Cost-Effective Nutrition for Diabetes Patients Impacted by COVID-19

Room G

Presenters: Victoria Phan

TITLE: Assessing the Impact of Pharmacist-Initiated Education on Cost-Effective Nutrition for Diabetes Patients Impacted by COVID-19

AUTHORS: Victoria Phan, Tiffany Park, Paige Brockington, Jennifer Elliott

OBJECTIVE: The objective of this study is to identify patients diagnosed with type 2 diabetes mellitus (T2DM) who have been negatively impacted financially by the COVID-19 pandemic and have decreased blood glucose control in association to food instability or reduced access to nutritious food. After identification of an acute financial issue, investigators will provide identified patients with educational materials and resources about cost-effective nutritional options to assist in blood glucose control.

SELF ASSESSMENT QUESTION: Can pharmacist-intervention and education about cost-effective nutrition lead to decreased blood glucose levels and hemoglobin A1c (HbA1c) in T2DM patients suffering financially due to COVID-19?

BACKGROUND: Diabetes is a chronic illness that affects 34.2 million adults in the US. The COVID-19 pandemic caused a rise in unemployment rates up to 14.7% total in April 2020.

METHODOLOGY: A pre-survey will be given to T2DM patients to collect demographic/contact information and questions to assess the impact of COVID-19 on their current financial situations, their changes in diet, and self-measured blood glucose (SMBG). The survey will be conducted at two separate clinics that provide diabetes care and at a community-based specialty pharmacy. Patients will be enrolled in the study if they meet criteria for 1) negative financial impact due to COVID-19 and 2) decreased control of blood glucose and/or HbA1c. Patients enrolled in the study will receive resources related to cost-effective food options and will also be provided a full consultation regarding the resources.

Patients will be asked to self-report morning fasting SMBG levels and HbA1c at the start of the investigation. SMBG levels will be collected by phone monthly for three months. At the end of the 3-month study period, patients will be asked to turn in SMBG logs, most recent A1c, and complete a post-survey. The post-survey will assess their current financial situation and perception of the impact of diabetes care, nutrition counseling, and educational materials.

RESULTS: In progress

CONCLUSIONS: In progress

<https://vimeo.com/538384699>

R Comparison of Low vs. High Dose (Prothrombin Complex Concentrate) PCC in Patients Undergoing Cardiothoracic Surgery

Presenters: Meera Jayendra Patel

TITLE: Comparison of Low vs. High Dose (Prothrombin Complex Concentrate) PCC in Patients Undergoing Cardiothoracic Surgery

AUTHORS: Meera Patel, Nicholas Barker, William Bender

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify and compare low dose versus high dose PCC in the treatment of bleeding associated with cardiothoracic surgeries.

SELF ASSESSMENT QUESTION: Is a lower dose of PCC as safe and efficacious as higher doses?

BACKGROUND: Data reveals that PCC may be more advantageous due to its increased concentration of clotting factors, more rapid reversal, and reduced blood transfusion requirements in comparison to FFP. The purpose of the study was to compare the efficacy and safety of low dose PCC (15 units/kg) to high dose PCC (25 units/kg) in patients undergoing cardiothoracic surgeries.

METHODOLOGY: Participants were included if > 18 years old, undergoing cardiothoracic surgery (CTS) at ESJH who received PCC. Participants were excluded if they had a history of hypercoagulable conditions, anticoagulant use within 2 days, or pregnant.

RESULTS: Overall, baseline demographics were similar in both groups in terms of age, gender, and race. Approximately 96 patients were evaluated, 49 patients received low dose PCC and 47 patients received high dose PCC. On average low dose PCC patients had less blood product usage including red blood cells ($p=0.175$, 95% CI - 0.88, 4.77), platelet transfusions ($p = 0.026$, 95% CI 0.43,6.60), and fresh frozen plasma ($p = 0.014$, 95% 0.33 - 2.91). However, high dose patients received slightly more pooled cryoprecipitate. Patients who received high dose PCC had an increased incidence mortality (18.8%) and washout overall (14.6%). Viscoelastic testing was more common in the low dose group.

CONCLUSIONS: This retrospective chart review revealed low dose PCC is associated with less blood product usage. Lower dosing may pose similar safety concerns and similar efficacy results in comparison to higher doses of PCC proving to be beneficial and for optimization of patient care in aortic-cardiothoracic surgery patients.

<https://youtu.be/PxidV0Y-DkQ>

R Comparison of Three Adjunctive Agents for the Treatment of Benzodiazepine-Refractory Alcohol Withdrawal Syndrome

Room C

Presenters: Gina Cherniawski

TITLE: Comparison of Three Adjunctive Agents for the Treatment of Benzodiazepine-Refractory Alcohol Withdrawal Syndrome

AUTHORS: Gina Cherniawski, Erica Merritt, Allison Powell

OBJECTIVE: Evaluate the efficacy and safety of phenobarbital, propofol, and dexmedetomidine for the treatment of BRAW.

SELF ASSESSMENT QUESTION: What adjunctive study agent was most efficacious in treating BRAW?

BACKGROUND: Compare the utilization and efficacy of phenobarbital, propofol, and dexmedetomidine for patients admitted with benzodiazepine-refractory alcohol withdrawal (BRAW). Evaluate the incidence of patients requiring treatment with a second study agent within 24 hours after the initiation of the primary study agent.

METHODOLOGY: Retrospective chart review of patients admitted for alcohol withdrawal syndrome (AWS). Eligible participants were ≥ 18 years old with a diagnosis of AWS treated with intravenous phenobarbital, propofol, or dexmedetomidine. Efficacy was evaluated by comparing Clinical Institute Withdrawal Assessment for Alcohol-Revised (CIWA-Ar) scores post-study drug administration and need for a second study agent within 24 hours. Treatment success was defined as achieving a CIWA-Ar <16 at 24-hours after the initiation of a study agent.

RESULTS: Ninety-one patients were included in the study. For the primary objective, 97%, 89%, and 73% of patients receiving phenobarbital, propofol, and dexmedetomidine achieved a CIWA-Ar score <16 after administration of the study agent, respectively. Prior to the initiation of the study agent, 32%, 58%, and 63% of patients in the phenobarbital, propofol, and dexmedetomidine groups had CIWA-Ar scores >16 , respectively. For the secondary objective, 16%, 53%, and 10% of patients in the phenobarbital, propofol, and dexmedetomidine groups required treatment with a second study agent within 24 hours after the initiation of the primary agent, respectively.

CONCLUSION: There was a significant difference in the phenobarbital group achieving CIWA-Ar scores <16 at 24 hours post-study drug administration. In this evaluation, phenobarbital was typically used to prevent adverse events from AWS rather than in patients refractory to symptom-triggered benzodiazepine therapy. Future studies are needed to determine if phenobarbital would be as effective if utilized more appropriately in BRAW.

Audiovisual Link: <http://youtu.be/-JmiKWx0INE>

R Sepsis alert early indicator in the emergency department: effect on antibiotic timing – a quasi-experimental review

Room B

Presenters: Renato Aranda

TITLE: Sepsis alert early indicator in the emergency department: effect on antibiotic timing – a quasi-experimental review

AUTHORS: Renato E. Aranda, Lauren Wright, Jason E. Dover, Sarah-Anne Blackburn, Jordan Vickers

OBJECTIVE: Assess the impact of an electronic visual alert system on the time to antibiotic administration

SELF ASSESSMENT QUESTION: What role can ED pharmacists play in the management of septic patients?

BACKGROUND: Current evidence-based sepsis guidelines recommend the administration of broad-spectrum intravenous antibiotics within 3 hours of presentation. In 2019, East Alabama Medical Center (EAMC) implemented an electronic visual alert system for patients with positive sepsis screenings at triage to improve adherence to current guidelines. The purpose of this study is to compare the time to antibiotic administration in septic patients admitted through the emergency department before and after the implementation of an electronic visual alert system.

METHODOLOGY: In this retrospective cohort study, patients ≥ 19 years admitted through the EAMC emergency department with a diagnosis of sepsis or septic shock from January 2019 to July 2019 and September 2019 to March 2020 were evaluated. Patients who became septic post-admission were excluded. The primary outcome was the percentage of patients receiving broad-spectrum IV antibiotics administered within 3 hours of presentation. Secondary outcomes included time to antibiotic administration, impact of ED pharmacist presence regarding time to antibiotic administration, length of stay, and mortality.

RESULTS: The percentage of patients receiving broad-spectrum IV antibiotic administration within 3 hours was the same (66%) between groups. Median time to antibiotics was reduced by 17 minutes in the post-intervention group (137 vs 154 minutes, $p=0.2668$). Time to antibiotics when a pharmacist was present in the ED was 154 minutes pre-intervention and 145 minutes post-intervention ($p=0.6309$). Additionally, the post-intervention group had lower all-cause mortality (8 vs 11, OR 0.7: 95% CI, 0.27-1.83) and reduced length of stay (6 vs 7 days, $p=0.3096$).

CONCLUSIONS: The implementation of a visual alert system for patients with positive sepsis screenings at triage was associated with decreased time to antibiotics, reduced length of stay, and lower mortality rates.

Link: <https://drive.google.com/drive/folders/1mDZym0AM51N1qaJJ2umvMNjxni380KF?usp=sharing>

Presenters: Sam Glenn

TITLE: Bacterial Pneumonia Co-infection in COVID-19 Patients

AUTHORS: Samuel Glenn, PharmD; Ryan Lally, PharmD, BCPS; Rachel Langenderfer, PharmD, BCPS; Lloyd Sarbacker, PharmD, BCPS; Linh Tran, PharmD Candidate; Madelyne Warren, PharmD Candidate

OBJECTIVE: At the conclusion of my presentation, the participant will be able to: describe the incidence of bacterial pneumonia co-infection in COVID-19 patients at admission, assess the appropriateness of empiric antibiotics, identify patients in whom antibiotics can be spared.

SELF ASSESSMENT QUESTION: Which COVID-19 patients should be considered for empiric antibiotics upon admission to the hospital?

BACKGROUND: Evidence has shown that patients who suffer from a viral respiratory infection may also suffer from bacterial co-infections. This study looks at the incidence of bacterial pneumonia co-infection in COVID-19 patients and usage of empiric antibiotics.

METHODOLOGY: De-identified data was obtained retrospectively from patient charts. Data was collected concerning the patient's baseline characteristics, history of present illness, length of stay, and pharmacological/antimicrobial and microbiological history. Patients were classified into either "community-acquired bacterial pneumonia co-infection" (CABPC) based on the timing of the cultures or antibiotics. A patient was considered to have CABPC if cultures obtained within 72 hours of admission resulted positive. This study also assessed for clinical outcomes related to length of stay and discharge. 163 patients who were cultured were randomly selected for analysis if they met the following criteria: admitted to Bon Secours St. Francis Downtown from 3/15/2020-9/15/2020, positive test for or clinical diagnosis of COVID-19.

RESULTS: Of the 163 patients, only 7 were found to have a bacterial co-infection (4.8%) on presentation. The only statistically significant baseline characteristic between the CABPC group and the Non-CABPC groups was mean procalcitonin at baseline, 14.43 vs 1.02 ($p < 0.001$). Other characteristics were not statistically different. There was a significant difference in 14-day mortality (43% vs 12%, $p = 0.02$) with a lower 14-day mortality in Non-CABPC, but no difference in 30-day or overall mortality between groups ($p = 0.159$).

CONCLUSIONS: Based off the data from this retrospective, observational study, patients rarely present with CABPC. Many patients may not require antimicrobial coverage at admission, but this study does not provide sufficient evidence for baseline characteristics for risk stratification. Procalcitonin may be of clinical utility, but further evidence and studies are warranted.

PRESENTATION LINK: <https://youtu.be/ZPX5ge1809k>

Presenters: Brittany Till

TITLE: Evaluation of duplicate perioperative antibiotic therapies and potential adverse events

AUTHORS: Brittany U. Till, Joshua Settle, Mary McKnight

OBJECTIVE: Evaluate the incidence of duplicate perioperative antibiotics and resulting adverse events.

SELF ASSESSMENT QUESTION: What was the most common perioperative antibiotic duplication?

BACKGROUND: The usage of perioperative antibiotics is a standard of care practice to decrease potential post-operative infections. However, the initiation of perioperative antibiotics in patients already receiving antibiotic coverage creates a preventable duplication of therapy. Duplication of perioperative antibiotic therapy may lead to increased antimicrobial resistance, unnecessary costs, drug-drug interactions, and preventable adverse events. The purpose of this study is to evaluate the incidence of duplicate perioperative antibiotics and potential adverse events at Baptist Medical Center South (BMCS). Potential cost savings will also be determined.

METHODOLOGY: This is a single-center, institutional review board approved retrospective chart review of patients that received perioperative antibiotics at BMCS from January to November 2020. Patient's charts were reviewed if they met all inclusion criteria. The electronic medical record system was utilized to review patient demographics, perioperative antibiotics administered, renal function changes and positive *Clostridium difficile* reported within fourteen days following duplicate antibiotic use. The primary outcome was to determine the percentage of patients receiving duplication of perioperative antibiotics. The secondary outcomes included the percentage of patients that experienced an adverse event and potential cost savings from eliminating duplicate antibiotic use.

RESULTS: Duplication of perioperative antibiotics occurred in 3.4% of patients undergoing surgical procedures. Out of the 147 patients that received duplication of perioperative antibiotics, sixteen percent experienced an adverse event. The most common adverse event was acute kidney injury (46%). Other adverse events included renal changes (33%) and supratherapeutic Vancomycin levels (21%). The estimated cost savings was around \$4,000 which includes order entry time, verification time, preparation time, and product usage.

CONCLUSIONS: There was a lower incidence rate of adverse events than anticipated; however, there were still adverse events that occurred with changes in renal function and elevated vancomycin levels. The results will be taken to Antimicrobial Stewardship (AMS) subcommittee and discuss future interventions that can be implemented to reduce unnecessary duplicates of therapy.

Presenters: Alyssa Osmonson

TITLE: Non-vitamin k oral anticoagulants in end-stage renal disease

AUTHORS: Alyssa Osmonson, Nathan Pinner, Jessica Starr, Kenda Germain, Thomas Achey

OBJECTIVE: State if NOACs are safe and efficacious in patients with ESRD

SELF ASSESSMENT QUESTION: Are NOACs safe and efficacious in patients with ESRD?

BACKGROUND: With the development of non-vitamin K oral anticoagulants (NOACs) options for anticoagulation in the general population has greatly increased. Trials demonstrating efficacy of NOACs consistently exclude patients with end-stage renal disease (ESRD). Results observational studies of NOACs in ESRD patients have led to changes in manufacturer and guideline recommendations, despite their small sample sizes. The purpose of this study is to determine if NOACs are safe and efficacious in patients with ESRD at Princeton Baptist Medical Center.

METHODOLOGY: This study is a retrospective, single-center chart review. The electronic medical record was used to identify patients 18 years and older admitted from January 1, 2015-August 1, 2020 with ESRD and received an oral anticoagulant for at least 24 hours during admission or at discharge. Patients were excluded for concomitant use of dual antiplatelet therapy, high risk of bleeding, invalid contact information or inability to contact patient after 2 attempts if unable to obtain information from chart review alone, or pregnancy. The primary endpoint was the occurrence of major bleeding. Secondary outcomes included the occurrence of minor bleeding, thrombosis, and admission secondary to a bleeding event or thrombotic event.

RESULTS: 68 patients were included in the study. 36 patients received warfarin and 32 received a NOAC. The primary outcome occurred in 15 (42%) of patients on warfarin and 5 (16%) patients receiving a NOAC ($p=0.0317$). There was no statistically significant difference in secondary outcomes.

CONCLUSIONS: Warfarin is associated with an increased risk of major bleeding in patients with ESRD when compared to treatment with a NOAC.

Video Link: <https://youtu.be/n4DPD-XhdU0>

O A real-world safety analysis of programmed death-1 pathway inhibitors (PD-1i) in patients with solid tumor malignancies and preexisting autoimmune disorders Room A

Presenters: Jordyn Higgins

TITLE: A real-world safety analysis of programmed death-1 pathway inhibitors (PD-1i) in patients with solid tumor malignancies and preexisting autoimmune disorders

AUTHORS: Jordyn P. Higgins; Anh V. Trinh; Tyler Beardslee; Marley Watson; Subir Goyal; Suchita Pakkala; Ragini Kudchadkar; Kristina F. Byers

OBJECTIVE: To characterize the safety and efficacy of PD-1i in patients with preexisting autoimmune disorders

SELF ASSESSMENT QUESTION: True or false: Based upon this presentation, immunotherapy can be safely used in patients with solid tumor malignancies and controlled autoimmune disease

BACKGROUND: Clinical trials evaluating PD-1i have largely excluded patients with PAD due to their innate predisposition to immune-related adverse events (irAEs). Only a few retrospective studies have evaluated the safety and/or efficacy of immunotherapy in patients with PAD. With many Americans currently living with PAD and the widespread use of immunotherapy, additional studies are needed to determine if PAD increases the risk of developing irAEs after PD-1i administration.

METHODOLOGY: A retrospective chart review was conducted on adults with solid tumor malignancies who received > 1 dose of pembrolizumab or nivolumab at Emory Healthcare from September 4, 2014 until December 31, 2019.

Patients were grouped according to PAD comorbidity status and matched using propensity score matching. The primary outcome is the incidence of irAEs.

RESULTS: Seventy-seven patients in the autoimmune group and 156 patients in the non-autoimmune group were included in this study. The majority of patients had an ECOG score of 0-2 (93.8%), metastatic disease (79.8%), and did not receive previous immunotherapy (90.9%). The most common solid tumor types were skin (32.2%), aerodigestive (26.6%), and genitourinary (19.7%). PAD was controlled in all of the autoimmune patients prior to immunotherapy (100%). In the autoimmune group, significantly more patients were female (49.35% vs. 33.97%, $p=0.024$), received 0 prior lines of therapy (59.74% vs. 42.31%, $p=0.012$), and had inflammatory disease at baseline (22.08% vs. 12.18%, $p=0.049$). The rate of irAE was 32.7% in the non-autoimmune group and 42.9% in the autoimmune group (OR 0.65, 95% CI 0.37-1.14, $p=0.130$).

CONCLUSIONS: Our data suggests that immunotherapy can be safely used in patients with solid tumor malignancies and controlled autoimmune disease.

1 Thrombosis Rates in Pediatric Liver Transplant Recipients Room F

Presenters: Anna Crooker

TITLE: Thrombosis Rates in Pediatric Liver Transplant Recipients

AUTHORS: Anna Crooker, Rochelle Liverman, Staci Serluco, Jenny Li, Gary Woods

OBJECTIVE: Evaluate the rates of thrombosis after the implementation of a target anticoagulation protocol

SELF ASSESSMENT QUESTION: Which of the following patients would benefit from anticoagulation after liver transplant?

BACKGROUND: Hepatic artery thrombosis (HAT) and portal vein thrombosis (PVT) are life-threatening complications after liver transplant. Thrombosis occurs due to an imbalance of pro-coagulation and natural anticoagulation factors. The use of anticoagulation after transplantation is not standardized and must balance the patient's risk of bleeding and thrombosis. Our primary objective was to determine the effect of an anticoagulation protocol on incidence of thrombosis after transplant.

METHODOLOGY: A retrospective chart review of liver transplant recipients was conducted at Children's Healthcare of Atlanta from 1/1/2009-12/31/2019. The primary outcome was to compare the incidence of thrombosis prior to our anticoagulation protocol (1/1/2009-7/31/2016) and after implementation (8/1/2016-12/31/2019). Prior to protocol implementation there was no standardized approach to anticoagulation use. The protocol encouraged prophylactic anticoagulation in the following patients: < 15 kg, underlying metabolic disease or malignancy, thrombosis of the native liver, vascular reconstruction, retransplantation due to thrombosis, and physician discretion. Secondary outcomes included time to thrombosis, adverse events, and patient and graft survival.

RESULTS: We reviewed 257 patients, 165 pre and 92 post protocol. The overall thrombosis rate was 13.7% pre protocol which was not statistically different from 18.3% post protocol ($p=0.3067$). Patients ≤ 8.7 kg ($p=0.0283$) and ≤ 5 months of age ($p=0.0378$) were found to have a significantly higher risk of thrombosis after transplant. The median time to thrombosis was 2.5 days pre protocol which was not statistically different from 7.5 days post protocol ($p=0.5888$). Patients experiencing a thrombotic event had a significantly lower survival rate (112 months with thrombosis, 140 months without; $p=0.0432$) as well as graft survival rate (41 months with thrombosis, 71 months without; $p=0.0057$). Twenty adverse events were reported in patients with thrombosis receiving anticoagulation compared to 6 adverse events in patients without thrombosis receiving anticoagulation.

CONCLUSIONS: Patients ≤ 8.7 kg and ≤ 5 months of age are at highest risk for thrombosis after transplant.

B Implementation of Interprofessional Diabetes Telehealth Services in a Rural Primary Care Organization

Room J

Presenters: Emma Feder

TITLE: Implementation of Interprofessional Diabetes Telehealth Services in a Rural Primary Care Organization

AUTHORS: Emma Feder and Anne ("Andy") Warren

OBJECTIVE: Describe the implementation of a multidisciplinary diabetes telehealth clinic at a primary care site

SELF ASSESSMENT QUESTION: Which methods may be utilized to implement an interprofessional diabetes telehealth clinic in a primary care setting?

BACKGROUND: Diabetes affects many lives, and those most impacted include rural populations who lack regular access to healthcare. The coronavirus pandemic has worsened this problem. At Mountain Area Health Education Center (MAHEC), a primary care center located in Asheville, North Carolina, our clinical pharmacy department utilizes telehealth-based care models to extend health services to western North Carolina, an area with a significant underserved population. Our longitudinal diabetes telehealth program began in 2018 and developed into a pharmacy resident-run, interdisciplinary clinic.

METHODOLOGY: We conducted interviews with previous pharmacy residents to gather information about program implementation, including success and challenges. We also sought feedback from key personnel including current pharmacy residents, pharmacists, physicians, nutritionists, and schedulers on how to improve the clinic. We then determined emerging patterns regarding challenges, successes and suggestions for improvement.

RESULTS: In fall 2018, the pharmacotherapy department established a diabetes telehealth clinic, which functions one half-day per week. It allows frequent follow-up with rural patients, helps our organization meet Accountable Care Organization quality measures, and gives residents exposure to diabetes care. It also evolved to include nutrition counseling. Other areas of growth include streamlining schedules and increasing awareness about the clinic.

Successes include interdisciplinary involvement, incorporation of learners, and regular patient follow-up. Challenges include lack of physician awareness, the need for additional clinic days, and the necessity of a "graduation" system for our patients.

CONCLUSIONS: Implementation of an interprofessional diabetes telehealth service is possible in primary care.

Benefits include increased access to care, learning opportunities for residents and students, and increased interprofessional collaboration. Continuous quality improvement is necessary to address barriers and evolve to meet the needs of patients and providers.

Presentation link: <https://youtu.be/QJt2QOh-Onc>

B Increased utilization of a home telehealth program to improve outcomes in a pharmacist-run medication management clinic

Room K

Presenters: Brianca Fizer

TITLE: Increased utilization of a home telehealth program to improve outcomes in a pharmacist-run medication management clinic

AUTHORS: Brianca Fizer

OBJECTIVE: Enroll Veterans with uncontrolled diabetes followed by a clinical pharmacy specialist into CCHT to evaluate management and outcomes.

SELF ASSESSMENT QUESTION: Will enrolling Veterans with high-risk diabetes from a CPS clinic into CCHT be an effective method for improving outcomes and monitoring patients more closely?

BACKGROUND: Diabetes affects nearly 25% of Veterans compared to only 10% of nonveterans. Interventions made by clinical pharmacy specialists (CPS) have demonstrated improvement in clinical outcomes; however, many Veterans are still not meeting their clinical goals for diabetes. The Veteran's Health Administration's program, Care Coordination/Home Telehealth (CCHT), was created to enhance the care of Veterans who have chronic conditions by performing remote monitoring and care coordination. Thus, increasing enrollment into CCHT could result in better diabetes management.

METHODOLOGY: This study enrolled CPS-followed Veterans with longstanding diabetes into CCHT. Data collection includes a retrospective chart review of a 6-month period pre-enrollment and post-enrollment into CCHT. A pre- and post-enrollment analysis will evaluate the effectiveness of CCHT on outcomes including A1c, blood glucose (BG), hypoglycemic events, CPS interventions, and number of CPS visits.

RESULTS: Sixteen Veterans were enrolled. Average age was 63.4±12.1 years, 100% were male with type 2 diabetes, 69% were black, average baseline A1c was 10.4±2.6, and 56% stayed enrolled in CCHT the entire study period. Data from pre – enrollment endpoints was compared to post – enrollment endpoints: average A1c decreased 10.3±2.5 to 8.4±1.7 mg/dl, average blood glucose decreased 159.4±21.0 to 148.7±36.9 mg/dl, average hypoglycemic events increased 2.0±1.4 to 10.4±8.74, average number of pharmacist interventions increased 8.5±7.0 to 9.5±7.1, and the average number of CPS visits 4.5±1.9 to 6.4±5.5.

CONCLUSIONS: CCHT is an effective method for monitoring patient outcomes more closely. On average patients who were enrolled in CPS clinics plus CCHT showed improvement in their A1c, and frequent hypoglycemic events were identified and addressed.

C Optimal timing of non-vitamin K oral anticoagulant initiation in patients with pulmonary embolism after catheter-directed thrombolysis

Room D

Presenters: Uma Patel

TITLE: Optimal timing of non-vitamin K oral anticoagulant initiation in patients with pulmonary embolism after catheter-directed thrombolysis

AUTHORS: Uma Patel, Mary Katherine Stuart, Megan Autrey, Nathan Pinner, Thomas Achey

OBJECTIVE: Define the optimal timing of oral anticoagulation initiation post-Ekosonic Endovascular System (EKOS) procedure in patients with pulmonary embolism (PE).

SELF ASSESSMENT QUESTION: Is it safe to initiate NOAC < 12 hours after EKOS?

BACKGROUND: In patients with pulmonary embolism (PE) who receive EKOS, American College of Chest Physicians has recommended parenteral anticoagulation following catheter-directed thrombolysis with a transition to either warfarin or NOAC. NOACs are now drug of choice in non-cancer related venous thromboembolism events (DVT/PE) and several studies have evaluated NOACs versus warfarin in post-EKOS, however the optimal timing of initiation of oral anticoagulation is largely unknown. The purpose of this study was to evaluate the optimal timing, in regards to safety and efficacy, of NOAC initiation post-EKOS.

METHODOLOGY: Patients > 18 years of age who underwent an EKOS procedure for submassive or massive PE, followed by administration of NOAC therapy were included. The primary outcome was a composite of major bleeding and recurrent VTE events during hospitalization following EKOS. Secondary outcomes included individual components of the primary outcome, minor bleeding, hospital LOS, and in-hospital mortality. Endpoints were compared between two groups who received their first dose of NOAC either 0-12 hours (early) or greater than 12 hours (delayed) after EKOS sheath pull.

RESULTS: 59 patients included in the early group and 4 patients included in the delayed group. Primary outcome observed in two patients in the early group (p-value = 0.714). Secondary outcomes observed in the early group (p-value = 0.797). Hospital length of stay was an average of 5-6 days (p-value = 0.794).

CONCLUSIONS: No statistically or clinically significant difference in initiating NOAC therapy either early or delayed after sheath pull. Risk of current VTE and bleeding events of 1.7% falls within range of 0-5% seen in previous studies, however larger studies are needed to definitively assess optimal timing of NOAC initiation.

Video Presentation: <https://vimeo.com/538844689>

R Evaluation of de-resuscitation using albumin with loop-diuretics in critically ill adults (DUAL-study)

Room B

Presenters: Theodore Vaggalis

TITLE: Evaluation of de-resuscitation using albumin with loop-diuretics in critically ill adults (DUAL-study)

AUTHORS: Theodore C. Vaggalis, W. Anthony Hawkins, Susan E. Smith, Erin Waldee

OBJECTIVE: Describe how albumin may enhance the effect of loop diuretics for de-resuscitation.

SELF ASSESSMENT QUESTION: What mechanistic pathways may allow albumin to enhance the effect of loop diuretics for de-resuscitation?

BACKGROUND: Albumin is sometimes prescribed in combination with loop diuretics to augment the diuretic effect in order to mitigate the harm from fluid overload. Heterogeneous patients and various dosing strategies have led to conflicting findings. This study aims to determine factors associated with responding to de-resuscitation using albumin with loop diuretics (DUAL-therapy) in critically ill patients.

METHODOLOGY: This is a single-center, IRB-approved, retrospective cohort study of adult patients admitted to an intensive care unit between January 2016 and August 2020. Patients were included if they received albumin within 3 hours of the loop diuretic. For patients who received DUAL-therapy more than once, only the first occurrence was included. Patients were dichotomized into two groups: responders (having a change in total urine output of at least 600 milliliters within six hours following DUAL-therapy) and non-responders. The primary outcome was to determine which factors may influence response to therapy. The secondary outcomes included the incidence of progression to renal replacement therapy (RRT), hypokalemia ($K < 3.5 \text{ mEq/L}$), hyponatremia ($\text{Na} < 135 \text{ mEq/L}$), hypochloremia ($\text{Cl} < 96 \text{ mEq/L}$), and metabolic alkalosis ($\text{pH} > 7.45 / \text{paCO}_2 \text{ 35-45 mmHg} / \text{HCO}_3 > 24 \text{ mEq/L}$) following DUAL-therapy among the two groups.

RESULTS: 98 total patients were included in this study; 46 (47%) responders and 52 (53%) non-responders. After completing the multivariate logistic regression, urine output 24hrs prior to therapy was the only factor associated with a statistically significant finding for responding to therapy (OR=2.54, 95% CI= 1.28-5.06, p-value= 0.008). There were no statistically significant findings among secondary outcomes between the two groups.

CONCLUSION: Results indicate that having a higher urine output 24hrs prior to therapy is associated with responding to therapy. Further research is warranted.

Link to Recording: https://drive.google.com/file/d/1V0wzshozNX4o-zv1cKkdA6ms37aq1Cb_/view?usp=sharing

R Evaluation of nursing education on initiation of guideline-directed management of mechanically ventilated patients in the Emergency Department

Room C

Presenters: Lauren Mullen

TITLE: Evaluation of nursing education on initiation of guideline-directed management of mechanically ventilated patients in the Emergency Department

AUTHORS: Lauren Mullen, Stephanie Allen, Cassey Starnes, Ryan Green, Shaun Rowe

OBJECTIVE: Recognize the goals of pain and sedation management following mechanical ventilation in the ED setting

SELF ASSESSMENT QUESTION: Which of the following is a recommended intervention for a patient recently initiated on mechanical ventilation in the ED requiring sedation? A. Initiate patient on appropriate fluids to sepsis guidelines B. Initiate pain control to achieve provider-directed RASS score C. Initiate patient on appropriate antimicrobial therapy D. Initiate corticosteroid therapy to aid in respiratory distress

BACKGROUND: Evaluate if a pharmacist-led nursing education results in more timely initiation of guideline-directed pain and sedation management in mechanically ventilated patients in an Emergency Department (ED).

METHODOLOGY: This is a retrospective quasi-experimental cohort study evaluating the timeliness of initiation of a guideline-directed pathway for mechanically ventilated patients in the ED after pharmacist-led education of ED nurses. The intervention in September 2020 included ED nursing education by pharmacists followed by a washout period of one month. Education consisted of presentations during huddles, handouts, and screenshots of how to order the designated pathway for their patient in the electronic health record (EHR). Pre-intervention EHR data was collected from November 2018-June 2020 and post-intervention EHR data will be collected from November 2020 to February 2021.

RESULTS: In progress

CONCLUSIONS: In progress

I Impact of Early vs. Late vs. No Infectious Disease Consultation on the Treatment of Staphylococcus aureus Bacteremia

Room I

Presenters: Christopher Snider

TITLE: Impact of Early vs. Late vs. No Infectious Disease Consultation on the Treatment of Staphylococcus aureus Bacteremia

AUTHORS: Christopher Snider, Stephanie Milliken, Jessica Michal, Kyle Ames

OBJECTIVE: Identify potential interventions that can improve the management and outcomes of patients with SAB

SELF ASSESSMENT QUESTION: How has the timing of IDC impacted the management of SAB?

BACKGROUND: Staphylococcus aureus bacteremia (SAB) is associated with significant morbidity and mortality.

Earlier initiation of appropriate antibiotics and infectious disease consult (IDC) has demonstrated improved outcomes in patients with SAB; however, the optimal time to IDC after SAB diagnosis remains unclear. The aim of this project is to assess the percentage of adherence to best practice guidelines and the effect on clinical outcomes between early IDC (within 24 hours of positive culture), late IDC (24 hours or later after positive culture), and no IDC in the management of SAB. Best practice guideline components include: source identified, source controlled, transthoracic echocardiogram and/or transesophageal echocardiogram performed, repeat blood cultures drawn at least every 96 hours until negative for S. aureus, and antibiotic optimization.

METHODOLOGY: This retrospective cohort includes patients at least 18 years old at time of specimen collection who had one or more blood cultures with S. aureus collected between 01/01/2017 and 09/30/2020 at McLeod Regional Medical Center. Percent adherence to best practice guideline components were compared between the three groups. Time to microbiological clearance, duration of therapy, recurrence of SAB, length of stay, and 30-day all-cause mortality and readmission will be evaluated as secondary outcomes.

RESULTS: In Progress

CONCLUSIONS: In Progress

I **Impact of rapid diagnostic blood culture identification panels on empiric use of broad-spectrum antimicrobials for select Gram-negative pathogens in a community hospital**

Room H

Presenters: Tristyn Cartrette

TITLE: Impact of rapid diagnostic blood culture identification panels on empiric use of broad-spectrum antimicrobials for select Gram-negative pathogens in a community hospital

AUTHORS: Tristyn Cartrette, April Dyer, Eric Locklear

OBJECTIVE: Describe the impact of BIOFIRE BCID panels on antibiotic de-escalation times and appropriateness.

SELF ASSESSMENT QUESTION: Which of the following statements is FALSE?

BACKGROUND: To determine if the use of BIOFIRE Blood Culture Identification (BCID) panels reduces the median duration of unnecessary broad-spectrum antimicrobial agent use for patients with BCID results that are positive for select Gram-negative pathogens and to evaluate the safety of the empiric antimicrobial therapy selections on the BCID algorithm implemented by UNC Health Southeastern.

METHODOLOGY: This retrospective cohort study was conducted at UNC Health Southeastern and evaluated 30 patients from each of two time periods: pre-intervention phase that evaluates care for the study population prior to BCID intervention (April 1, 2019 – September 30, 2019) and post-intervention that evaluated the study population after BCID implementation (April 1, 2020 – September 30, 2020). The study included inpatients ≥ 18 years of age who had a positive blood culture for one of the following Gram-negative organisms: *E. coli*, *K. pneumoniae*, *K. oxytoca*, *P. aeruginosa*, *S. marcescens*. Patients were excluded if they had polymicrobial blood cultures or were growing additional organisms at other sites. Additional exclusion criteria included hospital discharge prior to BCID results or patients requiring additional antimicrobial therapy for another indication.

RESULTS: All study outcomes showed no statistical differences in optimal regimens within 48 hours or appropriate changes in therapy after BCID implementation. It was found that after BCID implementation patients were exposed to more antimicrobial agents, however time from blood draw to organism identification did decrease slightly.

CONCLUSION: The implementation of BCID panels did not improve the time to appropriate antimicrobial therapy for patients with monomicrobial bloodstream infections that were admitted to the hospital at UNC Health Southeastern. A prospective study after provider education is warranted to further assess if the implementation of BCID panels is effective in streamlining antimicrobial therapies.

<https://youtu.be/YQJ-RlaOk3g>

L **Bleeding risk associated with dual antiplatelet therapy in percutaneous endoscopic gastrostomy tube placement**

Room E

Presenters: Hannah Leschorn

TITLE: Bleeding risk associated with dual antiplatelet therapy in percutaneous endoscopic gastrostomy tube placement

AUTHORS: Hannah Leschorn, Stella Ye, Olivia Morgan

OBJECTIVE: Describe the bleeding risk associated with PEG tube placement while continuing P2Y12 inhibitor

SELF ASSESSMENT QUESTION: What were the differences in composite bleeding events among patients that had a P2Y12 inhibitor held vs. continued prior to PEG tube placement?

BACKGROUND: Percutaneous endoscopic gastrostomy (PEG) tubes are frequently recommended for patients with dysphagia or inadequate oral intake. It is common for patients undergoing PEG procedures to be on dual antiplatelet therapy (DAPT) with aspirin and a P2Y12 inhibitor for ischemic neurologic or cardiovascular indications. PEG placement on DAPT is not advised due to possible high endoscopy-induced bleeding risk with recommendations to hold P2Y12 inhibitors while continuing aspirin monotherapy at least 5 days prior to the procedure. Clinical practice may differ from these recommendations and there is limited literature on bleeding risk associated with continuation of DAPT peri-endoscopy.

METHODOLOGY: A single-center, retrospective, medical record review was conducted on patients who received ≥ 1 dose of DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, prasugrel, or ticagrelor) ≤ 8 days prior to PEG placement between July 1, 2017 – June 30, 2020. Patients were excluded if they received concomitant therapeutic anticoagulation 7 days leading up to PEG placement or in the 48 hours following the procedure.

RESULTS: A total of 74 patients (37 patients in the aspirin group, 37 patients in the aspirin + P2Y12 group) met inclusion criteria. The primary composite outcome of major and minor bleeding in patients receiving aspirin versus aspirin + P2Y12 were 3 (8.1%) and 5 (13.5%), respectively ($p = 0.454$). There was no significant difference in hospital length of stay between the two groups ($p = 0.116$). In patients undergoing PEG on aspirin monotherapy, 11.8% of patients were bridged with tirofiban.

CONCLUSIONS: There were no significant differences in composite bleeding rates among patients who underwent PEG placement on aspirin versus aspirin + P2Y12 inhibitor.

https://static.sched.com/hosted_files/2021southeasternresidency/df/SERC_DAPT%20in%20PEG_Leschorn.mp4

Presenters: Heather Dalton

TITLE: Evaluation of the Impact of a Pharmacy Transitions of Care Program

AUTHORS: Heather Dalton, Emily Moose, Molly Hinely

OBJECTIVE: Determine the impact of pharmacist-driven transitions of care inpatient rounding and post-discharge outreach on number of hospitalizations and emergency department visits

SELF ASSESSMENT QUESTION: What is the impact of a pharmacy transitions of care program on number of hospitalizations and emergency department visits?

BACKGROUND: Transitions of care has come to the forefront of healthcare systems around the United States, as reimbursement models have changed based on patient readmission rates. Research shows benefit of pharmacist-driven transitions of care on adherence, medication discrepancies, and adverse events. However, there is a lack of research regarding the impact of transitions of care pharmacists alone on hospitalizations, emergency department visits, and hospital-admission cost savings. The purpose of this study is to determine the impact of a pharmacist-driven transitions of care program at an academic medical center.

Transitional Inpatient Rounding Experience (TIRE) is a pharmacist-driven transitions of care program at Wake Forest, in which pharmacy residents provide motivational interviewing patients who are at a high-risk for readmission to identify causes of potential medication-related readmissions at discharge. They will then complete a post-discharge follow-up call to resolve medication related issues that may have occurred during transitions of care.

METHODOLOGY: A single-center, retrospective cohort study was conducted via a pre- and post- intervention analyses. The data collection periods included 30 and 90 days within the date of intervention. Patients were excluded if they were pediatric, hospice, discharging to a facility, died within 90 days of intervention, or did not have a hospitalization within 90 days prior to the intervention. The primary outcome is the 30-day number of hospitalizations, compared with the rate of hospitalizations occurring prior to the intervention. Secondary outcomes include 90-day number of hospitalizations, 30-day number of emergency department visits, 90-day number of emergency department visits, and hospital cost-savings through reduction of hospitalizations.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presenters: Emelia Beam

TITLE: Assessing the Need for A Pharmacist-Led Mental Health Service

AUTHORS: Emelia Beam, Patti Fabel

OBJECTIVE: The objective of this study is to assess the need for establishing pharmacist-led mental health services at an employer-based medical center and pharmacy.

SELF ASSESSMENT QUESTION: What is the most prescribed agent at the site?

BACKGROUND: Mental disorders are known to affect mental, behavioral, and emotional wellbeing.¹ The impact of a mental disorder depends on the individual, and their symptoms can vary from no impairment to severe impairment affecting daily activities. In the United States alone, about 46.6 million adults have a mental illness with only 43.3% receiving treatment.² It is important to manage and treat illness as it increases the risk of long-term conditions including heart disease and diabetes. With Covid-19, the risk of mental disorder has increased. To make sure that employees, spouses, and dependents' mental needs are met, we wanted to investigate what gaps in care, the percentage of individuals diagnosed with mental health, and on a psychotropic for treatment.

METHODOLOGY: Regarding this retrospective chart review, patients will be included if they received a prescription for a psychotropic agent or diagnosed with a mental disorder. The data for this study will be pulled from the electronic medical record. Data pulled will be from October to December 2020. Demographic information such as age, gender and race will be collected and will be used to evaluate the characteristics of employees, spouses, and dependents. Psychotropics agents and mental disorder diagnoses will collected as well. Data from the pulled reports will be analyzed using descriptive statistics measures of central tendency and variability to determine frequency and percentages. Secondary endpoint that will be evaluated as well will be the prescription patterns of providers onsite, as well as comparing and contrasting mental health disorders and diabetes in term of prescriptions filed and associated cost

RESULTS: Anxiety disorder was the most common diagnosis requiring a psychotropic agent. Stress and sleep disorders were some of the most common diagnoses found in our study. Of note, Escitalopram was the most prescribed agent for the treatment of mental disorder. Cost associated with mental disorder was also analyzed, and our study found a roughly 30% increase from 2019 to 2020, the largest increase aside from infections due to COVID-19.

CONCLUSIONS: There is a need for a mental health service at the site. Anxiety disorder is a prevalent mental disorder treated at the site. Based on this, we can target mental health services to focus on patients with an anxiety diagnosis at as a starting point.

B Evaluation of Pharmacist-Driven Remote Patient Monitoring (RPM) in a Primary Care Setting Within a Community Health System during the Covid-19 Global Pandemic

Room K

Presenters: Kristen Pierce

TITLE: Evaluation of Pharmacist-Driven Remote Patient Monitoring (RPM) in a Primary Care Setting Within a Community Health System during the Covid-19 Global Pandemic

AUTHORS: Kristen Pierce, Melissa Johnson, Allison Presnell, Kelsey Martin, Beth Clements, Ashley Woodhouse

OBJECTIVE: After this presentation, the participant will define the financial effect of pharmacist-performed RPM in our health system.

SELF ASSESSMENT QUESTION: Which code is commonly used to bill for remote patient monitoring?

BACKGROUND: Remote Patient Monitoring (RPM) is used to prevent patient care gaps and optimize clinical outcomes using digital interfaces. This service is not tele-health therefore does not require a designated originating site in rural regions and can be provided to patients at home. In March 2019, pharmacists gained the ability to provide services billed incident-to physician or non-physician practitioner. When Medicare Physician Fee Schedule (PFS) aligned with the Public Health Emergency (which decreased face to face patient care) and stated only general supervision was required, RPM became an attractive opportunity for pharmacists to expand patient care for their supervising physicians and St. Joseph's/Candler (SJC) pharmacists utilized this opportunity beginning in March 2020 after privileges for RPM were expanded by the health system.

METHODOLOGY: This retrospective, observational study evaluated encounters of patients contacted for RPM. A computer-generated list identified 99457 RPM codes billed by SJC Primary Care from April 1st to September 30th, 2020. Subjects were identified through eClinicalWorks. Encounters were evaluated based on disease state and intervention.

RESULTS: Using average estimated revenue of \$49.50 per 99457, SJC revenue increased by approximately \$5,400 during 109 encounters. Pharmacists were involved in 72% of encounters and generated around \$3,800. Diabetes was encountered most often (64 patients) and interventions completed most frequently included medication initiations and dosage increases.

CONCLUSIONS: RPM within primary care offices of community health-systems provides another viable option to promote patient care and generate revenue. Annual updates to the PFS can change requirements to any HCPCS or CPT code. The 2021 update for RPM services requires at minimum, a real-time synchronous, two-way audio interaction that is capable of being enhanced with data transmission. Utilizing pharmacists to provide this service is a unique opportunity to provide pharmacist value in a virtual health care setting.

Link to presentation - <https://www.youtube.com/watch?v=PJEjpVXBmT4>**C The Incidence of Venous Thromboembolism After Heart Transplantation**

Room D

Presenters: Katherine Anderson

TITLE: The Incidence of Venous Thromboembolism After Heart Transplantation

AUTHORS: Katherine Anderson, Chris Larkin, Robin Tagatz, Caroline Gatzke, Kyle Stribling, Ashok Babu

OBJECTIVE: Identify the incidence of VTE in heart transplant recipients and compare efficacy of prophylaxis methods.

SELF ASSESSMENT QUESTION: How does the risk of VTE in heart transplant recipients at ASTW compare to previous literature and should more aggressive prophylaxis measures be used?

BACKGROUND: VTE is a common postoperative complication following non-minor surgical procedures, leading to increased morbidity and mortality. The incidence of VTE after heart transplantation has been reported as high as 9.3%. Current guidelines for VTE prophylaxis in heart transplant patients are unclear, most being non-specific to transplantation. The lack of clear recommendations and the high bleeding risk during surgery leads to reluctance to prescribe pharmacologic prophylaxis.

METHODOLOGY: Medical records were reviewed following discharge for patients who underwent heart transplantation at Ascension Saint Thomas Hospital West (ASTW) between May 1, 2016 and September 30, 2020. Patients were excluded if they required postoperative full-dose anticoagulation, except for postoperative VTE, or if they had a heart transplant in conjunction with another organ.

RESULTS: The incidence of VTE at ASTW was 13%, and most patients experiencing an upper extremity DVT (58%). Sequential compression devices (SCDs), were ordered for all patients. Of the 89 patients included, 2 patients received both SCDs and pharmacologic prophylaxis. One characteristic associated with VTE was the use of hemostatic agents intraoperatively. Thirty-three percent of patients who received recombinant factor VII developed a VTE postoperatively. Also, patients who had longer lengths of stay prior to transplantation were more likely to develop a VTE.

CONCLUSIONS: The incidence of VTE after heart transplantation at ASTW is higher than that reported in the literature, indicating that a more aggressive approach to VTE prophylaxis may be necessary.

<https://youtu.be/5yxXzQpmXl4>

Presenters: Ashley Hall

TITLE: Impact of Eat, Sleep, Console Process on Morphine Usage in Neonatal Abstinence Syndrome

AUTHORS: Ashley Maegan Hall

OBJECTIVE: The purpose of this study was to determine the impact of a novel therapeutic algorithm in the treatment of infants with neonatal abstinence syndrome (NAS).

SELF ASSESSMENT QUESTION: Will implementation of the Eat, Sleep, Console (ESC) protocol reduce morphine utilization for treatment of NAS compared with use guided by Finnegan scores?

BACKGROUND: Utilization of the symptom-based Finnegan Neonatal Abstinence Scoring System (FNASS) for guidance of NAS treatment is associated with increased hospital length of stay (LOS) and pharmacologic initiation. Implementation of the novel ESC protocol, which evaluates the patient's functional ability, has demonstrated beneficial reductions in these outcomes via emphasis on non-pharmacologic treatment. The aim of this study was to evaluate how implementation of the ESC protocol impacted morphine utilization and duration of hospitalization for patients with NAS.

METHODOLOGY: This was a retrospective study comparing therapeutic interventions and outcomes of NAS patients guided by the ESC protocol to those guided by FNASS scores. The ESC protocol was implemented at our facility June 1, 2020. A pre-implementation cohort included patients born at the facility between June 1 and December 31, 2019 who received morphine for treatment of NAS or had a drug screen indicative of opioid exposure. A post-implementation cohort included patients born at the facility between June 1 and December 31, 2020 who were treated utilizing the ESC protocol. Patients receiving morphine for any other indication were excluded from the study. The primary endpoint was duration of morphine therapy. Secondary endpoints included quantity of morphine doses administered, maximum morphine dose required, and LOS.

RESULTS: In Progress

CONCLUSIONS: In Progress

Presentation Link: <https://youtu.be/bDZJkrSEKcw>

Presenters: Sara A. Scott

TITLE: Risk factors for hypoglycemia in critically ill surgical patients on an insulin infusion

AUTHORS: Sara A. Scott; Kelli Rumbaugh

OBJECTIVE: To describe risk factors for hypoglycemia while receiving an insulin infusion

SELF ASSESSMENT QUESTION: Acute kidney injury is a risk factor for severe hypoglycemia while on an insulin infusion (True/False)?

BACKGROUND: Glycemic control in critically ill surgical patients has been shown to decrease post-operative infections and potentially decrease mortality, while hyperglycemia and glucose variance have been associated with increased mortality in this population. The insulin infusion protocol at Vanderbilt University Medical Center (VUMC) has demonstrated significantly less severe hypoglycemia (blood glucose 18 years old admitted to the surgical intensive care unit or cardiovascular intensive care unit and initiated on an insulin infusion between January 1, 2018 and July 31, 2020. The primary outcome was the incidence of severe hypoglycemia (BG < 40 mg/dL), and a logistic regression analysis will be used to assess independent predictors for severe hypoglycemia. Secondary outcomes included the incidence of at least one BG greater than 180 mg/dL, between 150 to 180 mg/dL, between 70 to 150 mg/dL, and less than 70 mg/dL and the absolute number of BG values in these ranges, glucose variance, ICU mortality, hospital mortality, ventilator-free days, and protocol violations. All statistics were performed using SPSS version 26. Categorical values were analyzed using chi-square and continuous values using Mann-Whitney U.

RESULTS: In progress

CONCLUSIONS: In progress

Video Link: https://youtu.be/Bumh-U6uM_0

I **Evaluating Characteristics and Outcomes of COVID-19 Inpatients Treated at the Ralph H. Johnson VAMC**

Room H

Presenters: Allison Kuhn

TITLE: Evaluating Characteristics and Outcomes of COVID-19 Inpatients Treated at the Ralph H. Johnson VAMC

AUTHORS: Allison Kuhn, David Deen, Katherine Pleasants, David Taber

OBJECTIVE: Describe the clinical characteristics and outcomes of COVID-19 inpatients treated at the Ralph H. Johnson VA Medical Center (RHJ VAMC)

BACKGROUND: The purpose of this quality improvement initiative was to evaluate the clinical characteristics and outcomes of COVID-19 inpatients with a focus on ICU admission status and timing of remdesivir initiation in relation to symptom onset.

METHODOLOGY: A retrospective chart review was performed to identify clinical characteristics and outcomes in hospitalized patients diagnosed with COVID-19 at RHJ VAMC between April 1 and September 30, 2020. A sub-group analysis including patients who received remdesivir was performed to identify potential differences in clinical outcomes.

RESULTS: One hundred six inpatients with confirmed COVID-19 were hospitalized from April 1 to September 30, 2020; 45 patients (42%) were admitted to the ICU during hospitalization. Those admitted to the ICU had higher systolic and diastolic blood pressures at admission and throughout hospitalization, higher D-dimer values at presentation, and higher D-dimer and procalcitonin peak values compared to inpatients not admitted to the ICU.

66 inpatients (62%) received remdesivir. Those admitted to the ICU received remdesivir a median of 7 days after initial symptom onset, compared to 4 days for non-ICU patients.

Each day that passes from the start of symptom onset to remdesivir initiation increases the risk of an ICU admission by 9.6%. Initiating remdesivir more than 7 days after symptom onset increases the odds of ICU admission by 3.6 times and death during hospitalization by 11.5 times.

CONCLUSIONS: Delayed remdesivir initiation increases the risk of ICU admission and death during hospitalization.

SELF ASSESSMENT QUESTION: Which of the following are factors that can increase a patient's risk of COVID-19 disease progression?

I **VANCOMYCIN AUC24/MIC DOSING PILOT USING BAYESIAN CALCULATOR SOFTWARE PROGRAM IN A SINGLE-CENTER COMMUNITY HOSPITAL**

Room I

Presenters: Katherine Olsen

VANCOMYCIN AUC24/MIC DOSING PILOT USING BAYESIAN CALCULATOR SOFTWARE PROGRAM IN A SINGLE-CENTER COMMUNITY HOSPITAL

Katherine A Olsen PharmD, Jessica Space, PharmD BCIDP, Dumitru Sirbu, PharmD

Ascension St. Vincent's Birmingham Hospital-Birmingham, AL

Background/Purpose: Investigate feasibility and safety of a Bayesian vancomycin calculator as the primary vancomycin dosing and monitoring system at Ascension St. Vincent's Birmingham in accordance with IDSA's standards of vancomycin dosing.

Methodology: Eligible adults who had intravenous vancomycin consults for pharmacy dosing with infectious indications other than meningitis/ventriculitis were dosed via a subscription Bayesian vancomycin calculation software during a three week trial. Patient data, information on AUC based dosing, and rates of acute kidney injury were collected. Acute kidney injury data was compared to previous trough-based vancomycin consults. Pharmacists were asked to complete surveys on consult completion time and satisfaction to identify implementation obstacles.

Results: The average time taken for completion of a vancomycin consultation with the AUC based dosing versus trough based dosing were 14.07 minutes and 9.47 minutes, respectively. Ten pharmacists filled out a user survey. Of the ten, nine of them felt that the Bayesian software recommendations were safe.

Conclusions: A Bayesian vancomycin AUC based dosing was trialed for three weeks. There was overall pharmacist satisfaction with the Bayesian software. Barriers of implementation of a Bayesian vancomycin software included mindset change, interprofessional education, and pharmacist training.

T Transitions of care pharmacist impact on readmission and use of a novel readmission risk assessment tool in hospitalized heart failure (HF) patients Room A

Presenters: Arrington Mason-Callaway

TITLE: Transitions of care pharmacist impact on readmission and use of a novel readmission risk assessment tool in hospitalized heart failure (HF) patients

AUTHORS: Arrington D. Mason-Callaway, Quwana Clemons

OBJECTIVE: At the conclusion of my presentation, the participant will be able to describe the predictive value of the LAMPS score for 30-day HF readmission in comparison to the predictive value of the mLACE score and describe the contribution of TOC pharmacist intervention in preventing HF readmission.

SELF ASSESSMENT QUESTION: The LAMPS scoring tool incorporates both clinical and socioeconomic parameters to predict 30-day readmission risk. TRUE/FALSE (Answer: TRUE)

BACKGROUND: There is an unmet need for an effective scoring tool, incorporating clinical and socioeconomic parameters, with robust predictive power of 30-day readmission risk for an acute exacerbation of HF. The purpose of this study is to compare the predictive value for 30-day HF readmission risk of a novel assessment tool (LAMPS) versus the modified-LACE scoring tool among HF patients discharged from a community hospital following admission for an acute HF exacerbation. This study will also capture the contribution of transitions of care (TOC) pharmacist interventions in preventing HF readmission.

METHODOLOGY: This is a single-center, retrospective, randomized chart review of adult patients (N = 200) admitted to Wellstar Cobb Hospital with an acute HF exacerbation from January 1, 2019 to December 31, 2019. Patients with primary International Classification of Diseases (ICD-10) codes for acute exacerbation of HF or new HF diagnosis will be identified using the electronic medical record and risk for HF readmission will be assessed using both the LAMPS and modified-LACE scoring tool. The primary endpoints are the positive and negative predictive value of readmission with an acute HF exacerbation within 30 days of discharge from the index encounter. The secondary endpoint is the incidence of readmission with an acute HF exacerbation within 30 days of discharge from the index encounter in patients who received TOC pharmacist services (≥ 1 of the specified TOC pharmacist activities) versus those who did not receive TOC pharmacist services.

RESULTS: In progress

CONCLUSIONS: In progress

A Development, Implementation, and Evaluation of an Inpatient Warfarin Management Education Program for Pharmacists in a Community Hospital Room G

Presenters: Felix Okotete

TITLE: Development, Implementation, and Evaluation of an Inpatient Warfarin Management Education Program for Pharmacists in a Community Hospital

AUTHORS: Felix Okotete, Jae Yook, Katy Walton, Jamie McCarthy

OBJECTIVE: Describe the development and implementation of the IWME program and identify its impact in inpatient warfarin management for pharmacists.

SELF ASSESSMENT QUESTION: Which component(s) of the assessment did show statistically significant improvement after the implementation of the IWME program?

BACKGROUND: Multiple dynamic factors make warfarin management a challenge when optimizing its dosing. In our hospital, clinical pharmacists manage warfarin past the initial dose verification. The purpose of this study is to develop, implement, and evaluate an inpatient warfarin management education (IWME) program for staff pharmacists.

METHODOLOGY: This single-center, pre-post interventional cohort study included full-time staff pharmacists who had documented at least one initial warfarin consult note in the electronic medical record between December 15, 2019 and February 15, 2020. A program was developed for education about general knowledge, management, and counseling of warfarin. An assessment was created to compare between pre- and post-intervention groups. The primary outcome was the composite score of multiple-choice questions, patient cases, and counseling. Secondary outcomes included individual components of the assessment and a self-assessed competency survey. Subsequently, randomly selected initial warfarin consult notes were compared.

RESULTS: The composite score was approximately 6 points higher in the post-intervention group than in the pre-intervention group (median [IQR] composite score out of 72 points: post-intervention 49.44 [44.35-56.13] points vs pre-intervention 43.81 [36.86-45.59] points, $p=0.002$). The post-intervention group scored 14% higher in multiple-choice questions ($p=0.02$) and 54% higher in counseling ($p=0.002$). The self-assessed competency survey score was 1 point higher in the post-intervention group (median [IQR] survey out of 5 points: post-intervention 3 [2-3] points vs pre-intervention 2 [2-2] points, $p=0.026$). While the post-intervention group documented indications 21% more correctly in initial consult notes ($p=0.036$), other data showed no difference.

CONCLUSIONS: The IWME program improved pharmacists' performance on the assessment and increased competence in inpatient warfarin management. Further education in initial consult note documentation is desired.

Video Recording of Presentation: www.youtube.com/watch?v=ELSiZ0mVxZw

Presenters: Anna Love

TITLE: Pharmacist-driven antidiabetic medication de-escalation in patients with well controlled diabetes

AUTHORS: Anna Love, Brian Leonard, Blake Johnson

OBJECTIVE: Explain pharmacist role in de-escalating antidiabetic medications for patients with well controlled diabetes.

SELF ASSESSMENT QUESTION: Which scenario would be the least appropriate for pharmacist intervention to de-escalate antidiabetic medications? A. Patient on insulin and sulfonylurea with A1c of 6.3% B. Patient who also has heart failure on metformin and empagliflozin with A1c of 6.5% C. Patient on metformin, DPP4, and GLP-1 with A1c of 6.4%

BACKGROUND: Expenditures on patients with diabetes account for over \$320 billion of United States health care costs and continues to rise. While hyperglycemia and associated effects account for a significant portion of these costs, it is also important to consider the cost of overly controlled patients with diabetes. Specifically, the effects of hypoglycemia and unnecessary medications contribute to this economic burden. The role for pharmacist in managing uncontrolled diabetes is well established, proving reduction of A1c is greater in pharmacist managed groups compared to usual care. Unfortunately, the role for pharmacists in patients with overly controlled diabetes is less defined. Thus, this study's purpose is to evaluate pharmacists' involvement in the de-escalation of therapy for patients below their A1c goals.

METHODOLOGY: Ambulatory Care Pharmacists at our center are currently provided with quality metrics data from third party insurers regarding quality performance measures. Pharmacists use the data provided to work in conjunction with the respective providers to develop, implement, and monitor pharmacotherapy plans to ultimately improve the quality of care provided. Ambulatory Care Pharmacists continue to follow patients not meeting quality metrics with insurers until care has been optimized. This project is designed to evaluate the impact of Ambulatory Care Pharmacists retrospectively on the quality measures data with assessments at three-month intervals from the index pharmacist intervention.

This study is a retrospective chart review of pharmacist recommended de-escalation in antidiabetic medication regimen. Patients with diabetes with a A1c \leq 6.5% who had at least one pharmacist recommended de-escalation in antidiabetic medication regimen are included. Patients are excluded if < 18 years old, pregnant, or Type 1 Diabetic. The primary outcome is change in hypoglycemic events (reported via clinic correspondence, hospitalization with chief complaint of hypoglycemia, and/or Emergency Department visit for hypoglycemia). Secondary outcomes include medication cost difference to patient and/or payer, maintenance of A1c goal, and any adverse effects other than hypoglycemia experienced during the study period.

<https://youtu.be/n2uIHtwVEOQ>

Presenters: Leanne Lagroon

TITLE: Apixaban versus warfarin for the treatment of venous thromboembolism in morbidly obese patients

AUTHORS: Leanne Lagroon, Madeleine Tilley, Lisa Gibbs

OBJECTIVE: Evaluate the clinical outcomes of apixaban compared to warfarin in the treatment of VTE in morbidly obese patients.

SELF ASSESSMENT QUESTION: What is the maximum weight/BMI for apixaban as recommended by the 2016 ISTH guidelines?

BACKGROUND: Direct oral anticoagulants (DOACs) have become increasingly popular choices for the treatment of venous thromboembolism (VTE) over the past decade. DOACs offer many advantages over warfarin including a lower incidence of bleeding, ease of fixed dosing, and a lack of routine monitoring requirements. However, few studies have evaluated the safety and efficacy of DOACs in morbidly obese patients.

METHODOLOGY: This single-center retrospective chart review compared morbidly obese adult patients diagnosed with a VTE and treated with apixaban to those treated with warfarin. The primary endpoint was VTE recurrence within 12 months. Secondary outcomes include pulmonary embolism or deep vein thrombosis individually in the first 12 months, major bleeding or clinically relevant minor bleeding defined by ISTH criteria, mortality, and switch to another anticoagulant.

RESULTS: 58 patients were included in the study. 15 received warfarin and 43 patients received apixaban. 2 patients (13.3%) in the warfarin group and 3 patients (6.98%) in the apixaban group experienced a recurrent VTE ($p=0.596$). 2 (13.3%) vs 1 (2.3%) patients experienced a clinically relevant minor bleed ($p=0.161$). The patients in the warfarin group had a significantly higher BMI (50.7 kg/m² vs 43.9 kg/m² [$p=0.036$]) and weight (150 kg vs 130.3 kg [$p=0.039$]) than the patients in the apixaban group.

CONCLUSIONS: There was no statistically significant difference in recurrent VTE between patients taking warfarin and apixaban. Although not statistically significant, patients taking warfarin trended towards higher rates of major and clinically relevant minor bleeding.

Presenters: Devin Josey

TITLE: Early versus Delayed Weight-Based Basal Insulin in Diabetic Ketoacidosis

AUTHORS: Devin Josey, Kristen Womble-Smith

OBJECTIVE: At the conclusion of my presentation, the participant will be able to explain if the addition of early weight-based basal insulin has a benefit in patients with diabetic ketoacidosis.

SELF ASSESSMENT QUESTION: Does early weight-based basal insulin reduce the time to anion gap closure in diabetic ketoacidosis?

BACKGROUND: The purpose of this study is to assess the current diabetic ketoacidosis protocol at Southeastern Regional Medical Center to determine if early administration of basal insulin in conjunction with a regular insulin infusion will reduce the time to anion gap closure, intensive care unit length of stay, hypoglycemic episodes, and evaluate the rate of rebound hyperglycemia and diabetic ketoacidosis.

METHODOLOGY: Patients were assigned to receive either standard therapy with a continuous regular insulin infusion (per institution approved protocol) or interventional therapy with a continuous regular insulin infusion (per protocol) and early weight based basal insulin. The weight-based dose was 0.25 units per kilogram and the basal insulin utilized was insulin glargine (Lantus). Basal therapy must have been initiated within 6 hours of the start of the insulin infusion. Patients were excluded if pregnant, on mechanical ventilation, had septic shock, were surgical patients, had chronic renal disease requiring hemodialysis, had severe chronic lung disease requiring corticosteroids, or were COVID-19 positive.

RESULTS: 32 of 52 patients evaluated met inclusion criteria. Of these patients, 26 were assigned to the standard therapy arm and 6 were assigned to the intervention arm. The primary outcome (rebound diabetic ketoacidosis) occurred in 6 patients (23.1%) in the standard therapy arm and 1 patient (16.7%) in the intervention arm (P=0.84). Time to anion gap closure was not significantly different between the two groups, with averages of 9.5 hours in the standard therapy arm and 6.9 hours in the intervention arm (P=0.27).

CONCLUSIONS: Early administration of basal insulin in conjunction with an insulin infusion did not have a significant reduction in rebound hyperglycemia and DKA, time to anion gap closure, intensive care unit length of stay, or hypoglycemic episodes.

https://youtu.be/QgfN5V5e6_k

Presenters: Stuart Pope

<https://youtu.be/SXYhMJtH1cw>

TITLE: Evaluation of the safety of lactulose for the treatment of hepatic encephalopathy in patients with decompensated cirrhosis

AUTHORS: Stuart Pope; Alley Killian; Peter Moran; Ram Subramanian

OBJECTIVE: Identify potential safety concerns of lactulose use in patients with acute on chronic liver failure

SELF ASSESSMENT QUESTION: Is lactulose use associated with a higher incidence of ileus in patients with acute on chronic liver failure?

BACKGROUND: Hepatic encephalopathy (HE) is a common complication seen in end stage liver disease, is characterized by a variety of neurological abnormalities, and is associated with poor prognosis. Lactulose is commonly used as first line treatment for HE in cirrhotic patients. However, there is limited, if any, data regarding the safety of lactulose for the treatment of HE in the acute-on-chronic liver failure (ACLF) patient population. Lactulose poses several risks to critically ill patients, including ileus formation, metabolic and electrolyte derangements, and hypovolemia. Thus, this retrospective cohort analysis will compare the safety of lactulose-containing versus non-lactulose-containing medication regimens for the treatment of HE in patients admitted with ACLF.

METHODOLOGY: A retrospective cohort review of adult patients who were admitted to the surgical/transplant ICU at Emory University Hospital with ACLF and received treatment for hepatic encephalopathy. The primary objective for this study is the incidence of gastrointestinal complications. Secondary objectives include metabolic disturbances and ICU/hospital length of stay.

RESULTS: The lactulose-containing group experienced a statistically significant higher rate of GI complications (34% v. 20%, p-value 0.03), likely driven by an increased incidence of ileus formation. Metabolic disturbances were more likely to occur in the non-lactulose-containing group. Patient-specific outcomes such as length of stay and mortality did not differ between groups.

CONCLUSIONS: Our study demonstrated that lactulose is associated with a higher incidence of GI complications in patients who are admitted to an ICU with decompensated cirrhosis. This finding may contribute to practice changes at our institution; however, prospective trials are needed to investigate the causative relationship between lactulose and GI complications in this patient population.

R Mannitol use for moderate to severe intracranial hemorrhage in the emergency department prior to intracranial pressure monitoring: retrospective chart review

Room D

Presenters: Laura Hamaker

TITLE: Mannitol use for moderate to severe intracranial hemorrhage in the emergency department prior to intracranial pressure monitoring: retrospective chart review

AUTHORS: Laura Hamaker, Anna Bush, Maura Hall

OBJECTIVE: Determine if mannitol use in intracranial hemorrhage prior to ICP monitoring in the ED is safe and effective.

SELF ASSESSMENT QUESTION: Which study group had a higher risk of mortality at baseline?

BACKGROUND: Assess the efficacy and safety of mannitol administration in the emergency department (ED) for moderate to severe intracranial hemorrhage prior to intracranial pressure (ICP) monitoring.

METHODOLOGY: Single center, retrospective chart review of patients presenting to the ED with moderate to severe intracranial hemorrhage from Jan 01, 2017 to Oct 31, 2020. Patients were included if they were ≥ 18 years old with a Glasgow Coma Scale (GCS) score < 13 . Patients with an initial GCS score of 3 or who were transferred to another facility were excluded. The primary outcome was improvement in GCS score from initial presentation to discharge. Incidence of extravasation was recorded. Descriptive statistics were used to analyze data.

RESULTS: A total of 61 patients were included in this study with 33 and 28 patients in the mannitol and control group, respectively. Baseline characteristics were similar in both treatment groups with a few exceptions. The presence of midline shifts and intraventricular hemorrhages were higher in the mannitol group predicting a worse prognosis for these patients at baseline. GCS scores improved by 0.8 and 1.3 in the mannitol and control group, respectively. In-hospital mortality was 51.5% in the mannitol group and 42.9% in the control group. Hospital length of stay was longer in the mannitol group by 3 days. There were no reports of extravasation in the mannitol group.

CONCLUSIONS: The mannitol group had less improvement in GCS scores at discharge; however, this group had a higher risk of mortality at baseline. This study was also limited by a small sample size. Further research is needed to determine the efficacy of mannitol in moderate to severe intracranial hemorrhage prior to ICP monitoring.

I Identification of clinical factors that determine empiric antibiotic use in preterm neonates with low risk of early onset sepsis

Room H

Presenters: Kirbie Bostick

TITLE: Identification of clinical factors that determine empiric antibiotic use in preterm neonates at low risk of early onset sepsis

AUTHORS: Kirbie M. Bostick, Kathryn B. Brown, Valana Vannoy, Daniel B. Chastain

OBJECTIVE: Describe clinical factors that characterize preterm infants as low risk of early onset sepsis

SELF ASSESSMENT QUESTION: Which of the following would not classify a preterm infant as low risk of early onset sepsis?

BACKGROUND: Early onset sepsis (EOS) has high morbidity and mortality risk, but presentation of EOS makes it difficult to distinguish symptoms of sepsis from typical problems associated with prematurity. The treatment of EOS in term neonates has well-established guidelines, and clinicians may utilize a validated sepsis risk calculator for making clinical decisions. Unfortunately, while guidelines for the management of EOS exist for pre-term infants (<34 6/7 weeks), they are ambiguous as to the appropriate use of empiric antibiotics in low risk infants, and the sepsis risk calculator cannot be used in this population.

METHODS: This was a single center retrospective observational study. Patients were excluded if they were considered high risk for EOS based on infant/maternal risk factors. Risk factors included intrapartum fever >37.5 °C, administration of intrapartum antibiotics, prolonged or premature rupture of membranes, or chorioamnionitis. Infants were stratified based on administration of antibiotics, and clinical characteristics and demographic information were gathered. Individual variables were analyzed using either Wilcoxon rank sum, chi squared, or fisher's exact test. Predictors of antibiotic use in this population were determined using multivariable-adjusted logistic regression.

RESULTS: In progress

CONCLUSION: In progress

I **Improvement of antibiotic prescribing for outpatient community acquired pneumonia in the emergency department**

Room I

Presenters: Sarah Jesse

TITLE: Improvement of antibiotic prescribing for outpatient community acquired pneumonia in the emergency department

AUTHORS: Sarah Jesse, Patrick Blankenship, Fern Pruss, Lauren Ladd, Madison Iman

OBJECTIVE: Identify potential interventions to improve discharge antibiotic prescribing for outpatient community acquired pneumonia in the emergency department.

SELF ASSESSMENT QUESTION: What are potential interventions that can improve discharge antibiotic prescribing for community acquired pneumonia in the emergency department?

BACKGROUND: The Infectious Diseases Society of America (IDSA) guideline on the treatment of community acquired pneumonia (CAP) was updated in October of 2019. In response to this update, two emergency department-centered interventions were made to facilitate incorporation of the new recommendations into practice. These interventions included targeted, physician-led education, and an ED discharge pathway that was implemented to guide optimal antibiotic selection. This project aims to assess the impact of these interventions on rates of appropriate discharge antimicrobial prescribing for CAP treated in a community hospital emergency department.

METHODOLOGY: In this IRB-approved retrospective chart review, antibiotic prescriptions for adults discharged from the ED with a diagnosis of CAP were analyzed for appropriateness based on the 2019 IDSA CAP guidelines. Those discharged between November 1st and December 1st, 2019 comprised the pre-intervention cohort, and patients discharged January 1st to February 1st, 2020, the post-intervention cohort. The primary outcome was to compare the proportion of patients discharged on appropriate antibiotic therapy before and after the intervention period. Proportions of treatment failure and treatment-associated adverse effects (TAAEs) were also compared.

RESULTS: 62 patients were included in the final analysis (19 in the pre- and 43 in the post-intervention group). Antibiotic prescriptions were deemed appropriate in 16% and 30% of cases in the pre- and post-intervention periods respectively [difference 14% (95% CI -0.07 to 0.35) $p=0.17$]. There were no significant differences in treatment failures or adverse events observed.

CONCLUSIONS: Although not statistically significant, provider education combined with a discharge pathway was associated with a 14% increase in appropriate antibiotic prescribing for CAP in the ED.

LINK TO PRESENTATION:

<https://tennessee.zoom.us/rec/share/Kbi82fzwjgnXUfSPwEIM5cK0oLZpzJATTdewXlftsPdtzclg2PyoHroviF1J05vc.EnEz6DtZguRf>

I **Procalcitonin and antibiotic use in patients with coronavirus disease 2019**

Room J

Presenters: Katie McCrory

TITLE: Procalcitonin and antibiotic use in patients with coronavirus disease 2019

AUTHORS: Katie McCrory, Kristen Paciullo, Ronald Tribble, and William Bender

OBJECTIVE: Describe the impact of serum procalcitonin (PCT) levels on antibiotic prescribing patterns in patients with coronavirus disease 2019 (COVID-19).

SELF ASSESSMENT QUESTION: Does PCT assist in determining appropriateness of antibiotic therapy in patients with COVID-19?

BACKGROUND: Current available literature reports rates of bacterial coinfections in patients hospitalized with coronavirus disease 2019 (COVID-19) to be low, however, the majority of these patients receive empiric antibiotics. The purpose of this study was to determine the impact of serum procalcitonin (PCT) levels on the prescribing patterns of antibiotic therapy in patients with COVID-19 at a single-center institution.

METHODOLOGY: A retrospective chart review was performed on patients who were admitted for treatment of COVID-19 during the first and second peaks of the virus (April 1, 2020 to June 30, 2020 and July 1, 2020 to September 30, 2020). The primary outcome analyzed was duration of antibiotic therapy in patients who had the following: no PCT level collected, normal initial PCT level (< 0.5 ng/mL), and elevated initial PCT (≥ 0.5 ng/mL).

RESULTS: Of the 170 patients analyzed, 22% percent ($n=37$) had no PCT level, 62% ($n=106$) had a normal initial PCT, and 16% ($n=27$) had an elevated initial PCT. The average duration of antibiotic therapy was 0.7 days in the group with no PCT, 4.5 days in the group with a normal initial PCT, and 9.4 days in the group with and elevated initial PCT ($p=0.005$). Although not statistically significant, the proportion of patients with positive bacterial cultures in the elevated PCT group was larger compared to the lower PCT group. The negative predictive value of PCT for this data set was 82.1%.

CONCLUSIONS: Serum PCT had a significant impact on antibiotic prescribing during the second peak of COVID-19 at this institution. The high negative predictive value seen emphasized that PCT was helpful in clinical decision-making.

VIDEO LINK: https://youtu.be/keGaa_6yxjxE

N The Impact of CGRP inhibitors on patient reported monthly migraine days at a safety-net, academic medical center Room F

Presenters: Millad J Sobhanian

TITLE: The Impact of CGRP inhibitors on patient reported monthly migraine days at a safety-net, academic medical center

AUTHORS: Millad J Sobhanian, Jessica K Ringler, Amy Perez, Olivia Morgan

OBJECTIVE: Evaluate the impact of calcitonin gene related peptide (CGRP) inhibitors in the real world setting

SELF ASSESSMENT QUESTION: What is a common characteristic of responders to CGRP inhibitors?

BACKGROUND: CGRP inhibitors show promising efficacy and safety for migraines based on clinical studies. At our institution a clinical pharmacist works with patients and providers to educate and improve access to these therapies. Data for use is limited to structured clinical trials. The purpose of this project is to assess the impact of these agents in the 'real-world setting' and evaluate the role of a clinical pharmacist on outcomes.

METHODOLOGY: This is a single-center, retrospective chart review of patients initiated on a CGRP inhibitor between 7/1/2019 to 4/31/2020 receiving at least a single dose of therapy with any documented follow-up within 6 months after initiation. Our primary outcome was the reduction in monthly migraine days (MMD) pre and post CGRP inhibitor initiation. We also looked at the distribution and characteristics of responders (defined as >50% reduction in MMD from baseline) and non-responders.

RESULTS: We included 46 patients in our analysis. A majority of patients were prescribed erenumab (89%) with 61% receiving clinical pharmacy services. There was a significant reduction in mean MMD of 7 days ($p < 0.01$) after therapy initiation with 52% of patients defined as responders. In the responders group there was a significantly higher number of patients receiving pharmacist assistance and a non-significant trend towards more responders using rescue triptan therapy. Adverse effects occurred in 5 patients, with 4 resulting in discontinuation of therapy.

CONCLUSIONS: CGRP inhibitors are safe and effective in our patient population. Additionally, clinical pharmacists can have a significant impact on patient outcomes by improving access and educating patients on proper use. Larger studies are needed to further characterize responders to therapy and guide initiation of CGRP inhibitors.

Presentation link: https://drive.google.com/file/d/1E_siY1SJ-ewi4AnjE4U9_g40P_hrUXCL/view?usp=sharing

O Real world analysis of tumor lysis syndrome in patients started on venetoclax combination for acute myeloid leukemia Room A

Presenters: Karin Abernathy

TITLE: Real world analysis of tumor lysis syndrome in patients started on venetoclax combination for acute myeloid leukemia

AUTHORS: Karin Abernathy, Matt Perciavalle, Katie Gatwood, Michael Byrne, Matt Zakhari

OBJECTIVE: Describe the risk of tumor lysis syndrome in AML patients started on venetoclax combination

SELF ASSESSMENT QUESTION: True or false. The majority of patients initiated on venetoclax combination for AML will experience TLS.

BACKGROUND: Venetoclax is an oral antineoplastic agent utilized in combination with low dose cytarabine (LDAC) or a hypomethylating agent (HMA) for treatment of acute myeloid leukemia (AML). Clinical trials report a risk of developing tumor lysis syndrome (TLS) during the venetoclax dose ramp-up. The purpose of this study was to evaluate the risk of TLS in AML patients in a large population outside the context of a tightly controlled clinical trial and to evaluate the incidence of hospital-acquired complications during the inpatient ramp-up admission.

METHODOLOGY: We performed a retrospective study of adults with AML receiving at least one dose of venetoclax with a HMA or LDAC. The primary outcome was the incidence of TLS. Secondary outcomes included risk factors for development of TLS, length of admission, and incidence of hospital-acquired complications.

RESULTS: Of 128 patients evaluated, 113 were included. The incidence of TLS was 8.8% (10 patients). All were laboratory TLS; one with hyperuricemia, 9 with hypocalcemia (median 6.8mg/dL, range 5-7), and 10 with hyperphosphatemia (median 5.3mg/dL, range 4.5-6). 6 patients received intervention with sevelamer. TLS occurred at a median of day 2. No clinical TLS occurred. Baseline white blood cells (WBC) were greater than 25,000/mm³ before initiation in 14.2% of patients with 18.8% (3) of those experiencing TLS. 3 of 5 patients considered high-risk for development experienced TLS. Length of admission and hospital-acquired complications analyses are ongoing.

CONCLUSIONS: TLS was uncommon in this study. The majority of patients with TLS had minor abnormalities in phosphorus and calcium that were non-severe. WBC may be an indicator of risk and TLS incidence. Patients with elevated WBC should be admitted for monitoring while it may be feasible to otherwise initiate venetoclax in the outpatient setting. Further analysis is ongoing.

Presenters: Gaybrielle Moore

TITLE: Safety of High-Intensity Atorvastatin with Sofosbuvir/Velpatasvir during Hepatitis C Virus Treatment

AUTHORS: Gaybrielle Moore, Ryan Ford, Katherine Fuller

OBJECTIVE: Describe the clinical impact of concomitant use of sofosbuvir/velpatasvir and high-intensity atorvastatin

SELF ASSESSMENT QUESTION: True or False. Concomitant use of high-intensity atorvastatin and sofosbuvir/velpatasvir resulted in clinically significant statin-related ADRs and statin discontinuations.

BACKGROUND: Sofosbuvir/velpatasvir increases the concentration of atorvastatin, and patients should be monitored for statin-related adverse drug reactions (ADRs) per the package insert. Clinically, providers often decrease atorvastatin to ≤ 20 mg to minimize the risk of ADRs while on hepatitis C virus (HCV) treatment. This study evaluated the clinical effects of high-intensity atorvastatin and sofosbuvir/velpatasvir coadministration.

METHODOLOGY: Patients ≥ 18 years of age, prescribed sofosbuvir/velpatasvir by an Emory hepatology provider between September 1, 2016, and August 31, 2020, and concurrently taking atorvastatin 40 mg or 80 mg were eligible for inclusion in this IRB-approved chart review. Patients were excluded if sofosbuvir/velpatasvir was prescribed by an external provider or never started. The primary outcome was the incidence of statin-associated ADRs while on HCV treatment. Secondary outcomes included the rate of atorvastatin discontinuation due to ADRs, incidence of sofosbuvir/velpatasvir-related ADRs, rates of sustained virologic response ≥ 12 weeks (SVR12) after treatment end, and mean number of drug interactions per patient.

RESULTS: Seventeen patients were included. Of these, 76.5% had history of an atherosclerotic cardiovascular disease (ASCVD) event and 23.5% had hyperlipidemia. No statin-related ADRs or statin discontinuations occurred.

The mean number of drug interactions per patient was 1.9.

CONCLUSIONS: Concomitant use of high-intensity atorvastatin and sofosbuvir/velpatasvir may be considered given the results of this study. Pharmacists are uniquely positioned to evaluate medication appropriateness and manage drug interactions.

Link to presentation: <https://youtu.be/Z2ULBFEqAaQ>

Presenters: Buzz Custer

TITLE: Implementation of MTM Services within a Community Pharmacy Associated with a Large Academic Medical Center

AUTHORS: Buzz Custer, Amanda D'Ostroph, Kristy Kenney, B. Kyle Hansen, Regina Schomberg, Andrea Luebchow, Kathy Bricker

OBJECTIVE: Identify barriers to completion of MTM opportunities in a health system community-based pharmacy.

SELF ASSESSMENT QUESTION: What did the study identify as barriers to completion of MTM opportunities in a health system community-based pharmacy?

BACKGROUND: Evaluate the implementation of Medication Therapy Management (MTM) services within a large health system community-based pharmacy.

METHODOLOGY: This IRB-approved study was conducted at one of nine community pharmacy locations owned and operated by Wake Forest Baptist Health. MTM services were implemented in this location through workflow adjustments and use of a contracted MTM platform. The platform identifies patients appropriate for potential pharmacist intervention. These can include a comprehensive medication review (CMR) or targeted intervention program (TIP), which can include adherence assessment, patient education, medication assessment, or potential refill opportunity.

MTM service feasibility was evaluated by the number of completed MTM opportunities within the MTM platform.

Pharmacists documented barriers to completing MTM opportunities (e.g., time, proper training, patient availability, etc.) were documented after each encounter.

RESULTS: The study included 22 MTM opportunities. Of the 22 attempted, 15 were completed successfully (i.e., intervention accepted). Eight of the opportunities were CMRs and 14 were TIPs. Successful completion was achieved in 75% of the CMRs and 60% of TIPs. There were 20 post-opportunity barrier surveys completed. A total of \$466 was associated with the 22 MTM opportunities with CMRs generating the most revenue.

CONCLUSIONS: MTM services were successfully implemented within typical workflow of a community pharmacy associated with a large academic medical center. TIPs were the most common MTM opportunity attempted; however, CMRs had a greater rate of successful completion. Revenue generated was greatest amongst CMRs. Imprecise documentation of time spent precluded a return-on-investment analysis. The most common barriers identified were related to patient lack of understanding for MTM intervention and pharmacist training in certain clinical areas. <https://youtu.be/dexjWdCIXBg>

Presenters: Chelsea Jennings

Video Link: <https://youtu.be/VlzOZmeMFUQ>

TITLE: Evaluation of Heparin Dosing in the Setting of Impella® Percutaneous Ventricular Assist Devices

AUTHORS: Chelsea Jennings, Tyler Chanas

OBJECTIVE: Describe anticoagulation practices observed in patients with Impella devices.

SELF ASSESSMENT QUESTION: How is heparin used in patients with Impella devices to achieve therapeutic ACT targets?

BACKGROUND: Anticoagulation in patients with Impella devices is complex and wide variation in clinical practice has been observed. Both a heparin based purge solution and systemic heparin are commonly seen in practice though primary literature is limited in characterizing their use. The purpose of this study was to evaluate heparin use among patients with Impella devices in an effort to guide anticoagulation practices.

METHODOLOGY: This single center, retrospective, observational review, included adult patients admitted to Vidant Medical Center between July 1, 2015 and June 30, 2020 who received a left or right sided Impella device for at least 12 hours, and unfractionated heparin with monitoring based on ACT values. Patients were excluded if they had any contraindication to heparin use. The primary endpoint was cumulative heparin rate at the time of initial therapeutic ACT (defined as 160-180s). Secondary endpoints included time to therapeutic ACT, time from Impella start to the addition of systemic heparin, initial, maximum, and minimum ACT values in patients not receiving systemic heparin, and initial rate of systemic heparin.

RESULTS: Of 118 patients identified for analysis, 52 met inclusion criteria. Primary reasons for exclusion were Impella placement less than 12 hours and heparin monitoring based on aPTT values. At time of initial therapeutic ACT a median total heparin dose of 617.5 IU/hr was found (IQR 382.5 - 841.3). Secondary endpoint results were as follows: median time to goal ACT (hours) 3.9 (IQR 1.1 - 6.4), median time to addition of systemic heparin (hours) 6.8 (IQR 2.9 - 10.6), median values for initial/maximum/minimum ACT while not on systemic heparin (seconds) 202/224/150 (IQR 180 - 235.5/191.5 - 320/138 - 160).

CONCLUSIONS: Findings from this study successfully characterized anticoagulation practices with heparin at a single institution over an extended time period. There was found to be a significant patient population that required the addition of systemic heparin to reach goal ACT targets. Wide variability in the amount of heparin required to reach goal ACT was seen and ACT targets were often met prior to the initiation of systemic heparin though not often sustained. Given current literature deficits in this clinical area further study is warranted.

Presenters: Sydney FINDER

TITLE: Five versus ten units of intravenous insulin for hyperkalemia in patients with moderate renal dysfunction

AUTHORS: Sydney FINDER, Linda McLaughlin, Ryan C. Dillon

OBJECTIVE: Describe the relative incidence of hypoglycemia and mean change in serum potassium when using 5 versus 10 units of insulin for hyperkalemia in patients with moderate renal dysfunction

SELF ASSESSMENT QUESTION: (True/False): Administration of 10 units versus 5 units of IV insulin for hyperkalemia in patients with moderate renal dysfunction is associated with no difference in the incidence of hypoglycemia, but has greater potassium lowering effects

BACKGROUND: Initial treatment of hyperkalemia often includes an attempt to shift potassium intracellularly with 10 units of intravenous (IV) insulin. Since insulin is renally cleared, giving 10 units of IV insulin has been shown to cause hypoglycemia in patients with renal dysfunction. While 5 units of IV insulin has been widely accepted for treatment of hyperkalemia in those with end stage renal dysfunction (eGFR < 15 mL/min/m²), there is little data for patients with moderate renal dysfunction (eGFR 15-59 mL/min/m²). The purpose of this study was to examine the incidence of hypoglycemia and mean change in serum potassium in patients with moderate renal dysfunction receiving 5 versus 10 units of IV insulin for treatment of hyperkalemia.

METHODOLOGY: This was a single center, retrospective study conducted at Vanderbilt University Medical Center. Adult patients with moderate renal dysfunction who received IV insulin for treatment of hyperkalemia were included. Patients were grouped based on whether they received 5 or 10 units of IV insulin and were excluded if they had dialysis within 6 hours of insulin administration, did not have a repeat blood glucose value within 6 hours of the initial BMP, or had only hemolyzed potassium lab results. The primary outcome was the rate of hypoglycemia, defined as a blood glucose of ≤70 mg/dL. Secondary outcomes included rate of severe hypoglycemia and relative potassium lowering effects.

RESULTS: In progress

CONCLUSIONS: In progress

<https://www.youtube.com/watch?v=eZ2Wyx17y8>

Presenters: John Brannon

TITLE: VTE prophylaxis strategies in COVID-19 positive ICU patients

AUTHORS: John Brannon, Tonya Thomas, Michelle Wilcox

OBJECTIVE: Compare the differences in the incidence of VTE and major bleeding in patients who received high intensity anticoagulation prophylaxis vs standard prophylaxis.

SELF ASSESSMENT QUESTION: How did patient outcomes compare when using high intensity or standard dosing to prophylactically anticoagulant patients.

BACKGROUND: The purpose of this study is to determine which anticoagulation prophylaxis dosing strategies are associated with less venous thromboembolisms (VTE) and major bleeding in COVID-19 ICU patients.

METHODOLOGY: This study is a retrospective chart review of adult patients who were treated for COVID-19 in the intensive care units at Ascension Saint Thomas West, Midtown, and Rutherford hospitals between March 1, 2020 and December 31, 2020. Patients must have been treated with either high intensity prophylactic anticoagulation or standard prophylactic anticoagulation. Patients were excluded if any of the following occurred less than 24 hours after admission to the ICU: transfer out of the ICU, confirmed VTE, or patient expired.

RESULTS: One hundred and twenty patients were included in the study. 62 patients received high intensity prophylaxis and 58 received standard prophylaxis. Between the high intensity and standard prophylaxis there was no statistical difference in VTE (6% vs 5% $p=1$) or major bleeding events (8% vs 5%, $p=0.718$). There was also no statistical difference in mortality, percentage of patients requiring intubation, survivor length of stay, or ICU length of stay.

CONCLUSIONS: There was no statistically significant difference in the rate of VTE or major bleeding between patients who received high intensity anticoagulation prophylaxis and those who received standard prophylaxis.

I **Evaluation of FilmArray® Blood Culture Identification (BCID) and TheraDoc® Utilization at a VA Health Care System (HCS)**

Presenters: Madison Treadway

TITLE: Evaluation of FilmArray® Blood Culture Identification (BCID) and TheraDoc® Utilization at a VA Health Care System (HCS)

AUTHORS: Madison Treadway, Bailey Guest, David Rudd, and Kelly Sugarman

OBJECTIVE: To evaluate FilmArray® BCID and TheraDoc® utilization at the Salisbury VA HCS and its impact on the time to initiation of appropriate antimicrobial therapy.

SELF ASSESSMENT QUESTION: How did BCID and TheraDoc® utilization affect time to appropriate antimicrobial therapy?

BACKGROUND: Prompt initiation of appropriate antimicrobial therapy is critical in patients with bacteremia. The Salisbury VA HCS uses FilmArray® BCID, which identifies 24 bacterial and fungal pathogens including 3 resistance genes within approximately one hour with more than 90% accuracy, and TheraDoc®, which has antimicrobial stewardship capabilities, to expedite antimicrobial decisions. The purpose of this study is to evaluate the timeliness of appropriate antimicrobial therapy initiation based on positive BCID results at the Salisbury VA HCS.

METHODOLOGY: This was a retrospective, quality-improvement chart review. Subjects eligible to be included were Veterans at the Salisbury VA HCS with positive BCID results from 5/1/18-7/31/20 from TheraDoc®. The primary objective was identifying average time for appropriate antimicrobial therapy to be initiated on Veterans without or not on appropriate antimicrobial therapy from the time of BCID positivity. Key secondary objectives included identifying average time to de-escalation and contributors to delays of antimicrobial initiation.

RESULTS: 75 Veterans were included in the study with average age of the sample being 68 years. Of those included, 64 (85%) were on appropriate antimicrobial therapy and 11 (15%) were on inappropriate or no therapy at the time of BCID results. The average time to appropriate therapy was 22 hours and 50 minutes, with time to provider order entry being the largest contributor. If BCID results occurred during business hours, time to appropriate therapy was nearly 30 hours shorter. The average time to de-escalation for those on appropriate therapy was 44 hours and 35 minutes.

CONCLUSIONS: Utilization of FilmArray® BCID and TheraDoc® can reduce time to appropriate antimicrobial therapy; however, a larger sample size needs to be studied.

Video Link

I **Predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving outpatient parenteral antibiotic therapy** Room H

Presenters: Jenna Ingram

TITLE: Predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving outpatient parenteral antibiotic therapy

AUTHORS: Jenna Ingram, Caroline Derrick, P. Brandon Bookstaver

OBJECTIVE: List predictors for non-therapeutic vancomycin concentrations post-discharge in patients receiving OPAT.

SELF ASSESSMENT QUESTION: What factors are associated with non-therapeutic vancomycin concentrations post-discharge in patients receiving OPAT?

BACKGROUND: Patients receiving outpatient parenteral antimicrobial therapy (OPAT) with vancomycin often have non-therapeutic drug concentrations at initial follow-up. The proportion of patients with non-therapeutic vancomycin concentrations at initial follow-up were assessed and predictors for non-therapeutic concentrations post-discharge in patients receiving OPAT were analyzed.

METHODOLOGY: This was a retrospective, cohort study among patients ≥ 18 years of age discharged from a Prisma Health Midlands hospital between January 2017 and October 2020 on IV vancomycin for ≥ 1 week. Patients on dialysis or those lost to follow-up were excluded. Non-therapeutic vancomycin concentrations were defined as an AUC/MIC outside of target range (400-600 mg/h*L). Univariate analysis and multivariable regression analysis were used to determine factors associated with initial non-therapeutic vancomycin concentrations.

RESULTS: A total of 45 patients were included in this IRB-approved study, with 19 (42%) patients in the therapeutic group and 26 (58%) in the non-therapeutic group. Of the non-therapeutic patients, 15 (58%) were supratherapeutic at initial follow-up. Moderate to severe renal disease was associated with non-therapeutic concentrations (OR = 5.33, $p = 0.135$). Patients with non-therapeutic concentrations had their vancomycin dose adjusted an average of 1 day closer to discharge than those with therapeutic concentrations (1.5 vs. 2.4, $p = 0.192$). Those with non-therapeutic concentrations were more likely to experience emergency department (ED) visits (OR = 2.59, $p = 0.203$) and acute kidney injuries (AKI) (OR = 2.67, $p = 0.399$) with both of these being more common amongst the supratherapeutic group.

CONCLUSIONS: Non-therapeutic vancomycin concentrations at initial outpatient follow-up are common. While there were no statistically significant predictors identified, patients with non-therapeutic concentrations were more likely to experience ED visits and AKI. Transitions of care are important for all patients receiving vancomycin. Further prospective investigation is warranted. <https://youtu.be/GMUVXDQKFpl>

I **The Use of Empiric Antibiotics in COVID-19 Patients** Room J

Presenters: Alexia Greene

TITLE: The Use of Empiric Antibiotics in COVID-19 Patients

AUTHORS: Alexia Greene, Christina Thurber, Heather Gibson, Andrew Kessell

OBJECTIVE: Evaluate the antimicrobial therapy used in COVID-19 patients admitted to a community hospital

SELF ASSESSMENT QUESTION: Which of the following empiric therapies would be considered in a COVID-19 positive patient with a procalcitonin of 0.5?

BACKGROUND: Severe acute respiratory syndrome coronavirus 2, known as SARS-CoV2, is a virus that caused an outbreak of a novel disease called coronavirus disease 19 (COVID-19). After contracting the disease, through respiratory droplets, patients present with varying severity from severe respiratory symptoms to asymptomatic. For those presenting to the hospital with respiratory symptoms, antimicrobial therapy is a common treatment modality. The clinical question is whether these respiratory symptoms are also indicative of a bacterial pneumonia co-infection and require antimicrobial therapy. Current literature suggests that empiric antimicrobial therapy is started in COVID-19 patients despite reports of co-infections occurring in only 2-46% of them. The objective of this study is to evaluate the antimicrobial therapy used in COVID-19 patients admitted to a community hospital.

METHODOLOGY: A retrospective observational study will be conducted to evaluate the use of antibiotic therapy and length of therapy in COVID-19 patients presenting to Moore Regional Hospital between April 1, 2020 and August 31, 2020. Patients will be included if they are: 18 years or older, diagnosed with COVID-19, and received empiric antibiotic therapy within 2 days of admission. Patient's demographics, severity of disease at admission, cultures, procalcitonin level, oxygen saturation, temperature, administered antibiotic regimen, and length of antibiotic therapy will be obtained from the electronic medical record. Patients who were less than 18 years old and pregnant will be excluded.

RESULTS: In progress

CONCLUSIONS: In progress

L UTILIZING ENOXAPARIN FOR PROPHYLACTIC VERSUS THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH COVID-19 Room E

Presenters: Miranda McGee

TITLE: UTILIZING ENOXAPARIN FOR PROPHYLACTIC VERSUS THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH COVID-19

AUTHORS: Miranda McGee, Megan Lail, Ann Maxwell, Kelsey Shamblen

OBJECTIVE: Determine the safety of enoxaparin prophylactic versus therapeutic dosing in patients with COVID-19.

SELF ASSESSMENT QUESTION: In what patient population(s) would prophylactic dose enoxaparin be more beneficial than therapeutic dose enoxaparin?

BACKGROUND: Hypercoagulation in patients with COVID-19 has been shown to increase mortality and lead to a greater severity of illness. The ideal anticoagulation regimen for venous thromboembolism (VTE) prophylaxis is not yet clear. The purpose of this study was to evaluate the safety and efficacy of prophylactic versus therapeutic dose enoxaparin in patients with COVID-19.

METHODOLOGY: This study was a retrospective cohort study including patients 18 years and older with COVID-19 who received enoxaparin during their admission. Patients were excluded if they were pregnant or required anticoagulation at baseline. Patients were considered to have received prophylactic dose enoxaparin if their highest anti-Xa level during admission was less than 0.6 int'l units/mL and considered to have received therapeutic dose enoxaparin if their highest anti-Xa level was 0.6 int'l units/mL or greater. The primary endpoint was the incidence of major or minor bleeds. The secondary endpoints were incidence of VTE and the duration and dose of enoxaparin therapy prior to development of bleeding or VTE.

RESULTS: In progress

CONCLUSIONS: In progress

O Impact of prophylactic intrathecal chemotherapy on central nervous system relapse in patients with AIDS-Related B-Cell Lymphoma Room A

Presenters: Mary Haley Ellis

TITLE: Impact of prophylactic intrathecal chemotherapy on central nervous system relapse in patients with AIDS-Related B-Cell lymphoma

AUTHORS: Mary Ellis, Joseph Torrisi, Julianna Cebollero, Jennifer LaFollette, Marjorie Curry

OBJECTIVE: Describe the role of IT chemotherapy in the treatment of patients with ARLs

SELF ASSESSMENT QUESTION: What treatment should be added to systemic chemotherapy to prevent CNS relapse in ARLs?

BACKGROUND: Evaluate the impact of intrathecal (IT) chemoprophylaxis in patients with AIDS-related lymphomas (ARLs) at a large urban academic medical center.

METHODOLOGY: A single-center, retrospective, medical record review was conducted for patients diagnosed with an ARL between May 2013 and December 2019 who received at least one cycle of first-line chemotherapy (EPOCH, HyperCVAD or CHOP with or without rituximab). Patients were excluded if they had Central nervous system (CNS) disease at diagnosis, received only pre-phase chemotherapy or CNS involvement was unable to be determined.

RESULTS: Of the 39 patients included, 56% were black males with a median age of 40 years. The primary diagnoses were diffuse large B-cell lymphoma (DLBCL) 51% (n=20), Burkitt lymphoma (BL) 31% (n=12), and plasmablastic lymphoma 18% (n=7) and 64% (n=25) had high-risk NHL at baseline. R-EPOCH (n=15) and R-HyperCVAD (n=11) were the most common regimens administered. Two patients (5%) had CNS relapse. One patient had plasmablastic lymphoma, received 4 doses of IT chemoprophylaxis and had CNS relapse 161 days after diagnosis. The other patient had BL, did not receive IT chemoprophylaxis and had CNS relapse 126 days after diagnosis. IT chemoprophylaxis was administered to 77% of patients (n=30/39). Of those who received IT chemoprophylaxis, 53% (n=16/30) received at least 4 doses and 67% (n=20/30) received alternating doses of cytarabine and methotrexate.

CONCLUSIONS: At our institution, 5% of patients experienced CNS relapse which is comparable to previously published data in patients with AIDS-related B-Cell lymphomas. Consistent with guideline recommendations, the majority of patients received at least 4 alternating doses of cytarabine and methotrexate.

Video Link: <https://drive.google.com/file/d/1ewv7aEfebYmCu7seb6M1gRtjOsA4fCl4/view?usp=sharing>

Presenters: Kayla Evans

TITLE: Impact of tacrolimus trough variability on acute rejection in lung transplant recipients

AUTHORS: Kayla Evans, Kristi Beermann, Holly Berry, Hui-Jie Lee, Hakim Azfar Ali

OBJECTIVE: Describe the importance of tacrolimus variability in lung transplant recipients

SELF ASSESSMENT QUESTION: Tacrolimus is associated with significant inter- and intra-patient pharmacokinetic variability: true or false

BACKGROUND: Acute rejection (AR) is a risk factor for the development of chronic lung allograft dysfunction (CLAD), the leading cause of morbidity and mortality in lung transplant (LT) recipients. Prevention of AR with a calcineurin inhibitor, cell cycle inhibitor, and corticosteroid is considered the standard of care following LT. Emerging data in the kidney, liver, and heart transplant literature suggest an association between high intra-patient tacrolimus variability and acute and chronic rejection. This study aimed to evaluate the impact of high tacrolimus trough variability, using coefficient of variation, on acute cellular rejection in the first year following LT.

METHODOLOGY: This is a retrospective study of adults who received a primary LT at Duke University Hospital between January 2014 and September 2018. Patients received basiliximab induction and survived with a functioning graft for at least 12 months. Patients who received multi-organ transplant, antithymocyte globulin induction, belatacept, or desensitization therapies were excluded. The primary endpoint is total acute rejection score (TRS), defined as the sum of biopsy scores within 12 months post-transplant where A0=0, A1=1, A2=2, A3=3, A4=4 and B=1 only if A=0. Secondary endpoints include development of donor-specific antibodies, antibody-mediated rejection, CLAD, graft loss and death within 24 months post-transplant.

RESULTS: 231 patients were included. The average age was 55 years, 67.1% were male, 90.9% were white, 57.1% had underlying restrictive lung disease, and 81.8% received a bilateral lung transplantation.

CONCLUSIONS: The average patient was a 55 year-old white male with underlying restrictive lung disease receiving bilateral lung transplantation.

Presenters: Ann Truong

TITLE: Impact of a Pharmacist-Led COPD Service at a Hospital-Based, Indigent-Care Clinic

AUTHORS: Ann Truong, Jennifer Hayes, Lori Hornsby

OBJECTIVE: Evaluate the impact of a pharmacist-led COPD service on optimizing guideline-directed pharmacotherapy, adherence, medication costs, and proper inhaler technique in addition to reducing COPD symptoms and improving overall quality of life

SELF ASSESSMENT QUESTION: Does having a pharmacist-led COPD service at a hospital-based, indigent care clinic improve patient outcomes and quality of life?

BACKGROUND: Chronic Obstructive Pulmonary Disease (COPD) affects millions of Americans and is currently the third leading cause of death in the United States with estimated healthcare costs of approximately 50 billion dollars annually. Many patients with COPD do not receive guideline-recommended pharmacotherapy and/or do not utilize proper inhaler technique, which leads to more frequent hospitalizations and greater morbidity and mortality. Indigent patients are at higher risk due to increased exposure to COPD risk factors. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines recommend an interdisciplinary approach to managing COPD, and pharmacists have demonstrated positive outcomes in COPD management due to their unique skillset and pharmacotherapy expertise. In order to provide more focused COPD management at a hospital-based, indigent care clinic, a pharmacist-led COPD service will be established. Impact on COPD-related outcomes will be evaluated.

METHODOLOGY: The primary outcome is the change in percentage of patients on guideline-recommended pharmacotherapy pre- and post-intervention. Secondary outcomes include change in smoking and vaccination status, inhaler technique, adherence, symptom scores, exacerbations, and hospitalizations as well as cost reduction and number of pharmacist interventions. After obtaining informed consent, patients are initially scheduled for an in-person appointment followed by 2-4-week follow-up visits. The components of the primary and secondary outcomes are assessed at each visit.

RESULTS: In progress

CONCLUSIONS: In progress

B Outcomes Associated with Direct Oral Anticoagulant Use in Patients with Non-Valvular Atrial Fibrillation and Obesity

Room K

*Presenters: Jamie Coates***TITLE:** Outcomes Associated with Direct Oral Anticoagulant Use in Patients with Non-Valvular Atrial Fibrillation and Obesity**AUTHORS:** Jamie Coates, Emily Bitton, Ashley Hendje, Tom Delate, Kari Olson, Sara Ly**OBJECTIVE:** Compare outcomes of patients with obesity and non-valvular atrial fibrillation (NVAF) who received direct oral anticoagulant (DOAC) therapy to those not obese.**SELF-ASSESSMENT:** Why do current guidelines not recommend DOAC use in patients weighing >120kg?**BACKGROUND:** DOACs have been compared to warfarin in several trials in patients with NVAF and generally found to be safer and more efficacious. Patients with obesity were mostly excluded from these studies.**METHODS:** This was a retrospective, matched, longitudinal, multi-site, cohort study. Patients were included if between September 1, 2016 and June 30, 2019 they were ≥ 18 years of age with a diagnosis of NVAF, received a DOAC (index date = date of dispensing), and had at least 180 days of health plan membership prior to the index date. Patients with and without obesity were matched up to 1:6 on age, sex, and CHA2DS2-VASc score. Obesity was defined as >120 kg using the weight recorded closest to the index date. Study data were extracted from administrative databases and through manual chart reviews. The primary outcome was a composite of systemic embolism, ischemic stroke, major bleeding, and all-cause mortality. Patients were followed until the first occurrence of primary outcome, termination of health plan membership, switch to different/stopped anticoagulant, or June 30, 2020.**RESULTS:** A total of 777 patients with obesity were matched to 3522 patients without obesity, all taking dabigatran. The obese group tended to be younger with a higher burden of chronic disease. Patients with obesity experienced a higher rate of gastrointestinal bleeding (HR 1.44, 95% CI 1.01-2.05).**CONCLUSION:** NVAF patients with obesity on dabigatran had an increased incidence of gastrointestinal bleeding. However, there was no statistically significant difference in the composite outcome, which helps support the use of dabigatran in patients with obesity.**PRESENTATION:** <https://youtu.be/Axt0aEz3vLU>**Y IMPACT OF IMPLEMENTATION OF A TRIAGE PHARMACIST ROLE ON CLINICAL INTERVENTION ACTIVITIES IN A SPECIALTY PHARMACY CALL CENTER**

Room G

*Presenters: Christine Barthen***TITLE:** IMPACT OF IMPLEMENTATION OF A TRIAGE PHARMACIST ROLE ON CLINICAL INTERVENTION ACTIVITIES IN A SPECIALTY PHARMACY CALL CENTER**AUTHORS:** Christine Barthen, Jen Young, Kathy Bricker, Helen Northrup, Kyle Hansen**OBJECTIVE:** Describe the impact of a triage pharmacist role on clinical intervention activities in a specialty pharmacy call center.**SELF ASSESSMENT QUESTION:** What is one way the triage pharmacist role impacted patient care?**BACKGROUND:** Assess the impact of a triage pharmacist role on clinical intervention activities within a specialty call center. A clinical intervention activity is defined as a situation that requires escalation to a pharmacist.**METHODOLOGY:** A single-center retrospective chart review of all clinical intervention activities completed in the Specialty Pharmacy Call Center from May 1, 2018 to April 30, 2019 and from July 1, 2019 to June 30, 2020, before and after the implementation of the triage pharmacist role. Therigy Insights (Orlando, FL) reporting was used to collect data including date clinical intervention activity was opened, date clinical intervention activity was completed, therapeutic category, clinical intervention category, Patient Care Plan activities, and patients discontinued from specialty pharmacy services. The primary endpoint of this study was time to clinical intervention completion.**RESULTS:** A total of 1521 (391 pre-triage and 1130 post-triage) clinical intervention activities were included in this IRB-approved study. Average time to clinical intervention completion decreased by 1.1 days ($p=0.002$). Time to first outreach attempt decreased by 0.68 days ($p<0.05$). Patient Care Plans created and acceptance of clinical interventions remained approximately the same ($p=0.608$ and $p=0.937$, respectively). There was a significant effect on time to clinical intervention completion among therapeutic categories, clinical intervention categories, and clinical outcome categories ($p=0.011$, $p=0.012$, $p<0.05$, respectively). After implementation of the triage pharmacist role, discontinuation from specialty pharmacy services increased ($p=0.004$). <https://youtu.be/yNKEb3dkQXo>

R Comparison of Diltiazem Dosing on Successful Rate Control or Cardioversion in the Emergency Department

Room C

Presenters: Casey Boyer

TITLE: Comparison of Diltiazem Dosing on Successful Rate Control or Cardioversion in the Emergency Department

AUTHORS: Casey Boyer, Kara Fifer, John Patka, Michelle Lall

OBJECTIVE: Identify optimal dosing of diltiazem in acute supraventricular arrhythmias.

SELF ASSESSMENT QUESTION: What are the pitfalls of inappropriate diltiazem dosing?

BACKGROUND: Atrial fibrillation guidelines recommend non-dihydropyridine calcium channel blockers as first line agents in ventricular rate control. However, diltiazem is often prescribed at doses less than the FDA-approved labeling of 0.25 mg/kg, potentially exposing patients to additional pharmacological agents. The aim of this study was to compare the safety and efficacy of diltiazem doses administered in the emergency department (ED) for supraventricular arrhythmias.

METHODOLOGY: A retrospective chart review was performed in adult patients receiving an initial intravenous diltiazem bolus in the ED for an acute supraventricular arrhythmia with a heart rate of at least 120 beats per minute. Patients were excluded if they received diltiazem for an indication other than supraventricular arrhythmia or received any rate or rhythm controlling agents prior to diltiazem. Patients were stratified to an on-label dosing group (at least 0.2 mg/kg) and off-label dosing group (<0.2 mg/kg). The primary outcome was treatment response within 30 minutes as a composite of rate control (heart rate rate of less than 100 beats per minute or at least 20% reduction from baseline) and cardioversion (resultant normal sinus rhythm).

RESULTS: A total of 85 patients were included in the analysis. Seventy-two percent of patients (26/36) in the on-label dosing group met the primary outcome compared to 57% of patients (28/49) in the off-label dosing group. The rate of hypotension was similar between groups.

<https://www.youtube.com/watch?v=6j3LbfClrwl>

R Evaluation of compliance with guideline recommendations in adult patients with diabetic ketoacidosis and hyperosmolar hyperglycemic state management in a rural, primary care hospital system

Room D

Presenters: Fay Creathorn

TITLE: Evaluation of compliance with guideline recommendations in adult patients with diabetic ketoacidosis and hyperosmolar hyperglycemic state management in a rural, primary care hospital system

AUTHORS: Fay Creathorn, PharmD; John Norris, PharmD, BCPS, BCCCP; Matt Bamber, PharmD, MBA, BCCCP

OBJECTIVE: In order to adequately manage these conditions, treatment regimens must be provided in a timely manner. Recognizing the difference between the two hyperglycemic classifications and how to treat each condition is crucial to optimizing patient outcomes. Once a patient has been diagnosed and a regimen has been initiated, it is important to closely monitor and adjust treatment to meet and maintain the specific parameters. Ensuring transitions of medical care between the emergency department, intensive care units, and medical floors, is essential in patients meeting therapeutic goals and reducing healthcare burden. The objective of this study is to evaluate the adherence to guideline metrics of our facility.

SELF ASSESSMENT QUESTION: How closely does our hospital adhere to guideline recommendations when treating DKA and HHS patients?

BACKGROUND: The most recent American Diabetes Association (ADA) guidelines include treatment strategies for diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS), however, they were published in 2009. Since then, newer primary literature and review articles have made further recommendations on optimizing outcomes and reducing the healthcare burden in a patient presenting with one of the two hyperglycemic episodes. In the United States, emergency department (ED) admissions for DKA and HHS increased 6.3% and ~1%, respectively, per year from 2009 through 2014. The rise in incidence has caused an expected rise in healthcare utilization, as well as, cost.

METHODOLOGY: A retrospective, observational chart review will be conducted to assess the management of DKA or HHS in patients presenting to FirstHealth Moore Regional Hospital between March 1st, 2020 and September 30th, 2020. Patients diagnosed with DKA or HHS and placed on insulin infusion for management will be included. Data elements that will be evaluated include insulin infusion and duration; potassium, phosphate, sodium, chloride, bicarbonate, albumin and magnesium levels; arterial blood gas; amount of fluid boluses administered and maintenance fluid rate; and presence of altered mental status. Patients who are less than 18 years old, pregnant, who received insulin therapy for a diagnosis other than DKA or HHS and renal failure patients on hemodialysis.

RESULTS: In progress

CONCLUSIONS: In progress

Presenters: Samuel Pavlichek

TITLE: Evaluation of Thromboembolic Events After SARS-CoV-2 Infection

AUTHORS: Samuel Pavlichek, John Carr, Susan Smith, Dylan Daniels, Bruce M. Jones

OBJECTIVE: Identify the rate at which thromboembolic events happen after inpatient admission for COVID-19

SELF ASSESSMENT QUESTION: What treatment increases the risk of thromboembolism in patients with COVID-19?

BACKGROUND: COVID-19 is known to induce a hypercoagulable state. Current guidelines do not recommend the routine use of anticoagulation in COVID-19 patients after discharge. The purpose of this study was to evaluate readmissions for thromboembolic events within 90 days in patients who were diagnosed with COVID-19.

METHODOLOGY: This was a retrospective analysis of adult inpatients diagnosed with an ICD-10 code indicating COVID-19 from 1/1/2020 through 10/2/2020, and followed for a 90-day period for readmission. Patients were excluded if they had a history of thromboembolism or receipt of therapeutic anticoagulation prior to COVID-19 diagnosis. The primary outcome was hospital readmission for thromboembolic event within 90-days. Key secondary outcomes included the effect of COVID-19 therapeutics on thromboembolism, and incidence of any thromboembolic event within 90-days of COVID-19 diagnosis.

RESULTS: There were 650 patients who met inclusion/exclusion criteria. The primary outcome occurred in 4 patients (0.6%). Any thrombosis occurred in 8.9% (n=58). These were made up of 33% pulmonary emboli (PE), 48% deep vein thromboses (DVT), 7% cerebrovascular accidents, and 12% mixed PE/DVTs. Age, gender, ethnicity, ferritin, and COVID-19 therapeutics were not correlated with increased risk of thromboembolism. Lower fibrinogen was associated with a significantly decreased risk of thromboembolism (381ng/mL vs. 567ng/mL, p=0.016). Advanced-dose prophylaxis had a statistically significantly higher rate of bleeding than standard-dose ($\chi^2=17.2$, p

Presenters: Lauren Longaker

TITLE: Benefit of Early Treatment with Remdesivir in Hospitalized COVID-19 Patients Receiving Non-invasive Oxygen Supplementation

AUTHORS: Lauren Longaker, Evan Lantz, Angela Wilson

OBJECTIVE: Summarize the difference, if any, between receiving remdesivir within 7 days of symptom onset compared to after 7 days.

SELF ASSESSMENT QUESTION: Is there a difference in outcomes when remdesivir is initiated within 7 days of symptom onset in patients with COVID-19 on non-invasive oxygen supplementation?

BACKGROUND: The purpose of this study was to assess the efficacy of remdesivir in COVID-19 patients requiring non-invasive supplemental oxygen related to the temporal relationship from date of symptom onset to initiation.

METHODOLOGY: This retrospective cohort study evaluated patients who were COVID-19 positive and receiving non-invasive oxygen supplementation. Eligible patients were separated into two groups, those who received remdesivir within 7 days of symptom onset or after 7 days. The primary endpoint was the median time to recovery related to time of remdesivir initiation from symptom onset. Secondary endpoints included mortality, length of stay and safety outcomes. Background characteristics were reported, and data was analyzed using appropriate statistical tests under the direction of a statistical analyst.

RESULTS: A total of 88 patients were included in the analysis. Patients who received remdesivir greater than 7 days after symptom onset had a median time to recovery of 5 days compared to 7 days in those initiated within 7 days (p=0.0160). Patients who received remdesivir within 7 days from symptom onset also had a mean length of stay one day longer those initiated after 7 days (p=0.0248). Three patients experienced elevation of liver function enzymes and two patients had an eGFR documented less than 30 mL/min/1.73m². Five patients died in the within 7 days group and 3 patients died in the after 7 days group (p=0.1402).

CONCLUSIONS: Patients who received remdesivir after 7 days of symptom onset experienced a faster time to clinical improvement and reduced length of stay. These results may have been confounded by statistical differences in baseline characteristics between groups.

Presentation link: <https://youtu.be/WRxjvJPn3js>

I Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

Presenters: Summer Sizemore

TITLE: Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

AUTHORS: Summer Sizemore, Megan Patel, Cyle White

OBJECTIVE: Compare and assess clinical outcomes in patients testing positive for influenza using antigen based and PCR tests

SELF ASSESSMENT QUESTION: Which influenza testing modality is more effective in reducing time to diagnosis, oseltamivir prescription, and contact precautions?

BACKGROUND: Early and accurate influenza testing is imperative to identify infected patients, initiate antiviral therapy, and provide infection prevention measures. Prior to August 2019, the study institution primarily utilized antigen based influenza testing. This resulted in false negatives that were identified by a subsequent respiratory viral panel (RVP). Since then, the institution adapted polymerase chain reaction (PCR) testing, which has the highest sensitivity and specificity.

METHODOLOGY: This retrospective, observational review compared clinical outcomes in patients who tested positive for influenza via send out testing for respiratory viral pathogens after an initial antigen screen to patients who tested positive by PCR after PCR only testing implementation. Adult and pediatric patients were selected for a chart review in a 1:2 ratio with twice the amount of patients in the post-PCR implementation group. The primary outcome compared time to initiation of appropriate antiviral treatment. Secondary outcomes assessed time to confirmed diagnosis and time to contact precaution initiation.

RESULTS: A total of 174 patients were included; 58 in the pre-PCR group and 116 in the post PCR group. The primary outcome assessed mean time from first influenza test to oseltamivir prescription which was 45.3 hours in the pre-PCR group and 5.1 hours in the post-PCR group. The secondary outcome of mean time from first influenza test to confirmed diagnosis was 43.6 and 1.7 hours in the pre-PCR and post-PCR groups, respectively. Mean time from first medical contact to contact precautions was found to be 69.9 hours and 13.2 hours in the pre-PCR and post-PCR groups.

CONCLUSIONS: Patients receiving PCR based influenza testing experience a quicker time to oseltamivir prescription, influenza diagnosis, and contact precautions.

<https://www.youtube.com/watch?v=b0PxuPR6UsY>

L **Naloxegol for return of gastrointestinal function after colorectal surgery in patients prescribed opiates**

Room E

Presenters: Skyler Brown

TITLE: Naloxegol for return of gastrointestinal function after colorectal surgery in patients prescribed opiates

AUTHORS: SR Brown, JM McLoughlin, AJ Russ, MA Casillas, JM Buehler, SD Yeager, JR Yates

OBJECTIVE: Describe naloxegol's efficacy following colorectal surgery in patients prescribed opiates

SELF ASSESSMENT QUESTION: Naloxegol is a potentially useful option following colorectal surgery because: A) Its cost B) No REMS program C) Belongs to a drug class previously showing efficacy in population D) All of the above

BACKGROUND: Post-operative ileus and delayed return of gastrointestinal function are significant causes of morbidity and prolonged hospital stay in patients undergoing colorectal surgery. Enhanced recovery after surgery protocols have been developed across the United States, which frequently include peripherally acting mu receptor antagonists to reverse the effects of opiates on the gastrointestinal tract without compromising analgesia. Alvimopan is the most commonly used agent in the class, but it is contraindicated with the use of opioids chronically. Naloxegol is a potential alternative to alvimopan in patients prescribed chronic opioid analgesics. To our knowledge, naloxegol has not been studied in this patient population.

METHODOLOGY: In this single-center, retrospective cohort, adult patients prescribed opioid analgesics who underwent colorectal surgery at the University of Tennessee Medical Center were included. Patients were excluded for the following: receipt of alvimopan, admission for abdominal trauma, naloxegol prescribed prior to admission, naloxegol given once pre-operatively but not post-operatively, and patients who expire during hospitalization. Patients will be divided into two groups dependent upon the receipt of naloxegol. The naloxegol group received standard of care plus naloxegol 12.5 mg once pre-operatively, then 12.5 mg daily post-operatively until a bowel movement for up to seven days. The placebo group received standard of care. The primary endpoint is mean time to first bowel movement or discharge, whichever comes first. Secondary endpoints include incidence of post-operative ileus, length of stay, a cost-benefit analysis, and gastrointestinal adverse events. Using a two-sided alpha value of 0.05 and 80 percent power, it was determined that 68 total patients would need to be collected. The primary endpoint is to be evaluated using a linear multiple regression analysis, while other endpoints will be evaluated using a Mann-Whitney U or Chi-squared tests.

RESULTS: Our preliminary results found a non-statistically significant reduction in the primary endpoint in the naloxegol group by 25.6 hours ($p=0.101$). Additionally, naloxegol reduced length of stay by 2.3 days ($p=0.023$) and was well tolerated in the safety analysis.

CONCLUSIONS: Preliminary data suggests naloxegol may be a safe and effective alternative to alvimopan, especially in patients who are prescribed opiates not qualifying for the use of alvimopan. Additional data must be collected to meet power for this study.

O **Characterization of Venous Thromboembolism Rates in Standard- and High-Risk Multiple Myeloma Patients Treated with RVd vs KRd**

Room A

Presenters: Natalie Brumwell

TITLE: Characterization of Venous Thromboembolism Rates in Standard- and High-Risk Multiple Myeloma Patients Treated with RVd vs KRd

AUTHORS: Natalie Brumwell, Kathryn Maples, Kevin Hall, Adrian Gavre, Nisha Joseph, Subir Goyal

OBJECTIVE: Identify various VTE risk factors in patients with MM.

SELF ASSESSMENT QUESTION: What risk factors are associated with VTE incidence in MM patients?

BACKGROUND: The risk for venous thromboembolism (VTE) is elevated in multiple myeloma (MM) patients, especially those receiving IMiDs. This study's purpose is to evaluate VTE rates in transplant eligible, high-risk, newly diagnosed MM patients treated with RVd versus KRd to determine if stronger VTE prophylaxis is warranted in the KRd population. Further, VTE rates between standard- and high-risk patients receiving RVd will be compared to assess the relation of risk status to VTE rates.

METHODOLOGY: This is a single-center retrospective chart review of patients who underwent treatment of newly diagnosed MM with RVd or KRd between January 1, 2017 and August 31, 2020. Inclusion criteria are adults ≥ 18 with newly diagnosed multiple myeloma, on aspirin prophylaxis, and receiving treatment with at least one cycle of RVd or KRd. The primary outcomes include rate of first occurrence of VTE in patients treated with KRd versus high-risk patients treated with RVd and rate of first occurrence of VTE in standard-risk vs high-risk patients treated with RVd. Secondary outcomes include time (days) to first VTE and VTE-related death.

RESULTS: Eighty-seven patients were included, with 30 patients each in the RVd standard-risk and high-risk groups, and 27 patients in the KRd group. In the RVd standard-risk vs high-risk group, 3 VTEs (10%) occurred vs 0, respectively ($p=0.237$). In the RVd high-risk vs KRd groups, 0 vs 3 VTEs (11.1%) occurred, respectively ($p=0.100$). The entire RVd group yielded 5% VTE rate vs 11.1% with KRd. The average time to first VTE was comparable for RVd vs KRd at 100 days vs 102 days, respectively.

CONCLUSIONS: There was not a significant difference of VTE rates between the groups; however, the overall higher rate with KRd may warrant stronger prophylaxis.

VIDEO LINK: <https://youtu.be/RKK2xqHztAw>

1 Evaluating Anticoagulation From Low Molecular Weight Heparin In Hematopoietic Stem Cell Transplant Recipients

Room F

Presenters: Kelli McCrum

TITLE: Evaluating Anticoagulation From Low Molecular Weight Heparin In Hematopoietic Stem Cell Transplant Recipients

AUTHORS: Kelli McCrum

OBJECTIVE: Identify anti-factor Xa level trends in patients receiving therapeutic doses of enoxaparin who have received a hematopoietic stem cell transplant.

SELF ASSESSMENT QUESTION: What factor should be taken into consideration when dosing therapeutic enoxaparin?

BACKGROUND: Historically, enoxaparin kinetics have been considered predictable, making anti-Xa monitoring obsolete unless a patient is pregnant, obese, or has poor renal function. However, a 2011 study found that solid organ transplant recipients may be a patient population where anti-Xa monitoring may be necessary. The study found that 67% of patients receiving therapeutic enoxaparin had supratherapeutic anti-Xa levels requiring dose reductions. Additionally, the study proposed a theoretical drug-drug interaction between enoxaparin and tacrolimus, the standard immunosuppressive used in both solid organ and hematopoietic stem cell transplant (HSCT) recipients.

METHODOLOGY: In an attempt to gain insight on safe and effective low molecular weight heparin (LMWH) dosing in patients who have undergone HSCT, anti-Xa levels are being monitored for HSCT recipients and patients with a leukemia or lymphoma diagnosis who are receiving enoxaparin for a therapeutic indication from December 2020 to April 2021.

RESULTS: Between December 2020 and April 2021, thirteen patients received therapeutic enoxaparin at a dose of 1mg/kg every 12 hours. Eight patients required dose adjustments for supratherapeutic anti-Xa levels. The average weight based dose for these patients is 0.7 mg/kg. Five of the eight patients requiring a dose adjustment had previously received a stem cell transplant. None of the thirteen patients received tacrolimus while receiving enoxaparin.

CONCLUSIONS: Data supports the notion that traditional 1mg/kg enoxaparin dosing may cause supratherapeutic anti-Xa levels in patients who have received a HSCT. Data collection will continue as more data is needed to draw any formal conclusions.

B Implementation of a Clinical Pharmacy Transitions of Care Initiative for Patients with Ambulatory Care Sensitive Conditions (ACSC)

Room J

Presenters: Keeya Turner

TITLE: Implementation of a Clinical Pharmacy Transitions of Care Initiative for Patients with Ambulatory Care Sensitive Conditions (ACSC)

AUTHORS: Keeya Turner, Amanda Karels, Cassandra Warsaw, Erin Amadon

OBJECTIVE: Describe results of clinical pharmacist specialists (CPS) inclusion in transition of care for patients with ACSC hospitalizations

SELF ASSESSMENT QUESTION: Which of the following are considered ACSC that are evaluated in the SAIL value model?

BACKGROUND: ACSC hospitalizations and readmissions were identified as an area for potential improvement in response to the Strategic Analytics for Improvement and Learning (SAIL) value model. The SAIL model is a national initiative implemented to improve hospitals' performance within the Veterans Health Administration.

Conditions classified as ACSC include hypertension, diabetes, pneumonia (PNA), congestive heart failure (CHF), and chronic obstructive pulmonary disease (COPD).

This project's aim was to reduce ACSC hospital readmissions by including counseling from CPS.

METHODOLOGY: This project was a quality improvement retrospective cohort analysis, which included patients discharged from Fayetteville VA Medical Center (FVAMC) between July and September 2020. ACSC hospitalizations were identified by admission diagnosis of COPD, CHF, or PNA. The primary endpoint was percentage of ACSC patients seen by a CPS within 14 days of discharge, stratified by CPS clinic. Secondary endpoints included number of CPS interventions, percentage of ACSC patients with medication review documented by inpatient CPS, and frequency of 30-day readmissions for ACSC patients encountered by CPS.

RESULTS: Thirty-five percent of ACSC patients were encountered by a CPS within 14 days of discharge. There were 48 medication interventions made by CPS during follow up appointments. The inpatient CPS reviewed 71% of the patients admitted to FVAMC for ACSC hospitalizations. There were only 2 ACSC readmissions within 30 days of discharge.

CONCLUSIONS: This project provides insight to CPS impact during transitions of care. It also has potential to generate future projects concerning the discharge and documentation process within FVAMC. Ultimately, this may benefit SAIL ratings and help improve patient care within FVAMC.

B Improving diabetes management for veterans through implementation of a population health-based telepharmacy clinic

Room K

Presenters: Rachele Kelley

TITLE: Improving diabetes management for veterans through implementation of a population health-based telepharmacy clinic

AUTHORS: Rachele Kelley, Courtney Gamston, Pamela Stamm, Garrett Aikens, Greg Peden, P. David Brackett, Kimberly Braxton-Lloyd

OBJECTIVE: List interventions made through implementation of a telepharmacy diabetes service.

SELF ASSESSMENT QUESTION: What is the impact of a population health based telepharmacy diabetes service?

BACKGROUND: Population health management utilizes data from an entire community of patients to develop strategies to improve health outcomes. Population health data from a rural clinic of the VA system have demonstrated the need for enhanced care for its patients with diabetes. To improve the quality of care provided to veterans of this area, a population health-based telepharmacy service housed within a school of pharmacy was developed to provide a diabetes management service.

METHODOLOGY: Eligible veterans were identified through population health dashboards as having no A1C measurement and/or an A1C \geq 9% within the last 12 months. Eligible patients were recruited by phone to participate in a telepharmacy-based comprehensive diabetes intervention. Clinical pharmacists and fourth-year pharmacy students on advanced practice rotations provided disease state counseling, medication therapy management, and referrals, as indicated. Service evaluation will occur through a comparison of pre-/post-intervention data including A1C, medications, medication adherence, blood pressure, fasting blood glucose, and adherence to diabetes guideline recommendations.RESULTS: Since the initial analysis of the first population health dashboard in August 2020, several patients have been contacted to have labs drawn, some of which has an A1C \geq 9%, resulting in a reduction in patients needing labs and an increase in patients with A1C \geq 9%. Since the initiation of the comprehensive diabetes clinic visits, five patients have been enrolled and several drug-related problems (DRPs) have been addressed.

CONCLUSIONS: Although unable to compare pre-/post data since initiation of clinic, several DRPs were addressed. Of those patients we have contacted thus far, all were willing to enroll in the clinic to receive pharmacy management for their diabetes care. Initial and follow-up appointments are currently ongoing.

R Comparison of Incremental Versus Percentage Dose Adjustment Protocols for Patients on Extracorporeal Membrane Oxygenation (ECMO) Support Receiving Argatroban

Room B

Presenters: Carys Davies

TITLE: Comparison of Incremental Versus Percentage Dose Adjustment Protocols for Patients on Extracorporeal Membrane Oxygenation (ECMO) Support Receiving Argatroban

AUTHORS: C. Davies, N. Badger-Plange, H. Powell, C. Moran, D. Garrett, A. Komisar, C. Parry

OBJECTIVE: To determine if an incremental versus a percentage-based dose adjustment nomogram for argatroban for ECMO anticoagulation requires fewer total changes over the course of therapy.

SELF ASSESSMENT QUESTION: Is an incremental or a percentage-based nomogram for argatroban dosing for ECMO safer for patients?

BACKGROUND: Systemic anticoagulation is required for patients supported on extracorporeal membrane oxygenation (ECMO). Unfractionated heparin has been the gold-standard anticoagulant used. However, critically-ill patients on ECMO may develop thrombocytopenia, leading to concerns for heparin-induced thrombocytopenia (HIT). Hence, the use of argatroban for this indication has increased. Further research is warranted to define goal activated partial thromboplastin time (aPTT) ranges and dose adjustment protocols to provide safe and effective anticoagulation.

METHODOLOGY: This study was conducted via retrospective chart review. Adult patients receiving argatroban while on ECMO were included. Patients were excluded if argatroban was discontinued before two therapeutic aPTT values. Patients started on a newly-implemented, incremental dose adjustment protocol ("incremental group") were matched to those who received argatroban on the previously used percentage-based dose adjustment protocol ("percentage group"). Endpoints included average number of dose adjustments per day, total percentage of therapeutic aPTT values, and dosing errors in each protocol.

RESULTS: A total of 26 patients were included in this study with 13 patients each group. The average number of dose adjustments per day were 0.78 in the incremental group and 0.67 in the percentage group ($p=0.5$). The total percent of therapeutic aPTT values in the incremental group was 62% and 65% in the percentage group ($p=0.65$). There were 3 protocol errors in the incremental group and 0 in the percentage group ($p=0.72$).

CONCLUSIONS: While there were no statistically significant differences in endpoints between both groups, the increased frequency of errors in the incremental group was concerning for patient safety. Therefore, the percentage-based dose adjustment protocol was safer for use.

Video link: <https://vimeo.com/538967725>

Presenters: Taylor Tanner

TITLE: Impact of adrenergic vasopressor exposure in a community teaching hospital intensive care unit

AUTHORS: Taylor Tanner, Sarah Blackwell, Kenda Germain

OBJECTIVE: To evaluate the effect of decreased maximum adrenergic vasopressor dosages on overall vasopressor exposure

SELF ASSESSMENT QUESTION: Does lowering vasopressor dosage caps reduce overall vasopressor exposure?

BACKGROUND: Vasopressors are commonly administered to intensive care unit (ICU) patients for hemodynamic support; however, their use may decrease perfusion to vital areas of the body, resulting in adverse effects. In 2016, a new intensivist group at Princeton Baptist Medical Center (PBMC) drove a global reduction in maximum vasopressor dosage limits, leading to questions of whether optimal doses exist.

METHODOLOGY: This is a single-center, retrospective, comparative group study conducted in patients admitted to the Medical ICU at PBMC from August to October 2016 and 2019. Patients were included if they were 19 years of age or older and received infusion(s) of epinephrine, norepinephrine, and/or phenylephrine for at least 4 hours. Patients who died, transferred to inpatient hospice within 24 hours of adrenergic vasopressor initiation, transferred from an outside hospital ICU, were pregnant, or received hemodynamic support pending organ harvest were excluded. The primary outcome was mean adrenergic vasopressor dose in norepinephrine equivalents over the first 72 hours. Secondary outcomes included number of concomitant vasopressors, incidence of vasopressin initiation, index ICU length of stay after vasopressor initiation, shock-free survival, and incidence of acute kidney injury, digital necrosis, and mesenteric ischemia.

RESULTS: There were 79 patients included, 41 in the pre-implementation group and 32 in the post-implementation group. There was no statistically significant difference in mean adrenergic vasopressor dose between the two groups ($p=0.17$).

CONCLUSIONS: There was no difference in overall vasopressor exposure between groups; however, incidence of the addition of phenylephrine and vasopressin were higher post-implementation. This study suggests that lowering vasopressor dosage caps may lead to increased utilization of secondary agents.

Video presentation: <https://vimeo.com/543186798>

Presenters: Hannah Christensen

TITLE: Reducing Hypoglycemia in the Cardiovascular Intensive Care Unit

AUTHORS: Hannah Christensen, Jessica Odom, Lyndsay Gormley, John Bruch, Austin Roe, Alex Ewing

OBJECTIVE: Determine if less conservative blood glucose targets in cardiac surgery patients reduces hypoglycemia incidence without increasing sternal wound infection rates.

SELF ASSESSMENT QUESTION: What are risk factors for sternal wound infection?

BACKGROUND: Hypoglycemia (blood glucose ≤ 70 mg/dL) is associated with increased risk of mortality in intensive care unit (ICU) patients. Conversely, hyperglycemia (blood glucose ≥ 180 mg/dL) in cardiovascular surgery patients is an independent risk factor for postoperative sternal wound infection (SWI). SWI prolongs hospital stay and is associated with significantly increased morbidity and mortality. Postoperatively, current guidelines recommend a continuous intravenous insulin infusion to maintain blood glucose < 180 mg/dL. Beyond this threshold, there is conflicting evidence on the degree of glycemic control intensity to optimize patient outcomes without increasing hypoglycemia. All cardiac surgery patients at our institution receive an insulin infusion controlled by a computer-based algorithm to maintain perioperative blood glucose within a target range, previously set at 100-140 mg/dL. In September 2020, the glycemic target was changed to 120-160 mg/dL. The objective of this study was to determine if increasing perioperative serum blood glucose targets for patients undergoing median sternotomy cardiac surgery from 100-140 mg/dL to 120-160 mg/dL reduces hypoglycemia incidence without increasing SWI rates.

METHODOLOGY: A single-center, retrospective, pre- and post-intervention analysis was conducted. The pre-implementation period included October to December 2019, with a run-in period during September 2020. The post-implementation period encompassed October to December 2020. Patients included adults admitted to the Prisma Health – Upstate Greenville Memorial Hospital CVICU on continuous insulin infusions after cardiac surgery. Patients placed on extracorporeal membrane oxygenation or who died during surgery were excluded. The primary outcome was hypoglycemia incidence < 70 mg/dL. Key secondary outcomes included 30-day SWI incidence, all-cause mortality, time on insulin drip, incidence of severe hypoglycemia < 40 mg/dL, bloodstream infection, and postoperative renal failure.

RESULTS: The number of hypoglycemic events < 70 mg/dL per 1,000 ICU days significantly decreased from 73.37 to 27.34 ($p < 0.001$). There was no significant difference in 30-day sternal wound infection rates or any other key secondary outcomes.

CONCLUSIONS: A perioperative target glucose range of 120-160 mg/dL significantly reduced rates of hypoglycemia in CVICU patients after cardiac surgery, compared to a target range of 100-140 mg/dL, without increasing rates of sternal wound infection.

I **Remdesivir 5 vs 10 days of therapy in patients with COVID-19 on invasive mechanical ventilation or extracorporeal membrane oxygenation**

Room I

Presenters: Lindsay Oehlkers

TITLE: Remdesivir 5 vs 10 days of therapy in patients with COVID-19 on invasive mechanical ventilation or extracorporeal membrane oxygenation

AUTHORS: Lindsay Oehlkers, Jarett Worden, and Kwame Asare

OBJECTIVE: Compare five versus 10 days of remdesivir therapy in patients with COVID-19 who require invasive mechanical ventilation or ECMO.

SELF ASSESSMENT QUESTION: Is there a difference in clinical status in patients with COVID-19 who are treated with five versus 10 days of remdesivir therapy who require invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO)?

BACKGROUND: COVID-19, or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified in December 2019, and has since caused over 24 million cases in the United States alone, leading to over 500,000 deaths. To date, there are no published studies assessing shorter courses (

I **Time series analysis evaluating the short- and long-term impacts of a multifaceted approach to targeting fluoroquinolone use in a tertiary, non-teaching hospital**

Room H

Presenters: Brianna Belsky

TITLE: Short- and long-term impacts of a multifaceted approach to targeting fluoroquinolone use in a tertiary, non-teaching hospital

AUTHORS: Brianna Belsky, Quentin Minson

OBJECTIVE: Evaluate the impact of a multifaceted approach to decreasing fluoroquinolone use on consumption of fluoroquinolones and common alternative antibiotics at a tertiary, non-teaching hospital.

SELF ASSESSMENT QUESTION: Does the implementation of a multifaceted approach to decreasing fluoroquinolone use lead to significant changes in antimicrobial consumption and resistance rates on an antibiogram at a tertiary, non-teaching hospital?

BACKGROUND: Fluoroquinolone use is a known risk factor for multi-drug resistant organisms, which results in higher hospital costs. Previous studies have shown that restricting fluoroquinolones can lead to reversals in resistance of various bacteria and decrease superinfections. A variety of strategies exist to decrease fluoroquinolone use, but feasibility and efficacy differ depending on the setting and available resources.

METHODOLOGY: This study is a single-center, retrospective, interrupted time series analysis spanning from January 2011 to December 2019 at a 288-bed tertiary, non-teaching hospital with 71 ICU beds. The fluoroquinolone restriction policy was implemented in September 2014. The primary outcome is trends in fluoroquinolone consumption measured by defined daily doses per 1000 adjusted patient days (DDD/1k APD). Secondary outcomes included the consumption of alternative antimicrobials measured by DDD/1k APD and the impact on *Pseudomonas aeruginosa* susceptibilities.

RESULTS: Fluoroquinolone consumption decreased from 100.20 DDD/1000 APD in August 2014 to 73.96 DDD/1000 APD in October 2014. Fluoroquinolone consumption decreased further to 14.89 DDD/1000 APD in

December 2019. The only significant increase in other classes of antimicrobials was seen with tetracyclines.

Levofloxacin susceptibility rates for *Pseudomonas aeruginosa* increased from 61% in 2014 to 83% in 2018.

CONCLUSIONS: A significant decrease in fluoroquinolone consumption was seen during the late post-intervention period and a significant increase in levofloxacin susceptibility was seen for *Pseudomonas aeruginosa* after the implementation of a fluoroquinolone restriction policy.

PRESENTATION LINK: <https://www.youtube.com/watch?v=RzQ8oSL84Ts>

Presenters: Christina DiCola

TITLE: Evaluating the Safety of an Apixaban Loading Dose for New Venous Thromboembolism Events in Patients with Severe Kidney Disease

AUTHORS: Christina DiCola, Paul Pleczkowski, Lexie Zidanyue Yang, James Merchant Jr.

OBJECTIVE: To describe appropriate apixaban therapy in patients with severe renal dysfunction diagnosed with a VTE

SELF ASSESSMENT QUESTION: Based on current recommendations from the drug manufacturer, what is the initial dose for a patient with CKD-V and a newly diagnosed DVT wishing to start apixaban therapy?

- a) apixaban 2.5mg twice daily
- b) apixaban 5mg twice daily
- c) apixaban 7.5mg twice daily
- d) apixaban 10mg twice daily**

BACKGROUND: Each year, there are 10 million cases of venous thromboembolism (VTE) reported. Apixaban is an oral anticoagulant used as treatment for VTE. There is a lack of data for the use of apixaban in new VTE events among patients with Chronic Kidney Disease (CKD) stage IV, V, or End-Stage-Renal-Disease (ESRD).

METHODOLOGY: This retrospective, single center, observational cohort study included patients 18 years and older who received apixaban for a newly diagnosed VTE from September 2014 to September 2020. Included patients had CKD-IV, CKD-V, or ESRD. Patients were placed into two apixaban treatment groups: loading dose vs. maintenance dose.

RESULTS: A total of 97 patients were included. The composite bleed event rate was 14.3% for the loading dose group and 11.6% for the maintenance dose group (risk difference, 2.7% [90% CI, -9.9% to 15.3%]; P=0.59 for non-inferiority). The proportion of VTE reoccurrences was higher in the loading dose group compared to the maintenance dose group (17.9% vs. 8.7%).

CONCLUSIONS: An apixaban loading dose for new VTE events may be safe in patients with CKD-IV, CKD-V, or ESRD.

Presenters: Keenya Leggette

TITLE: Evaluation of the Integration of Simulation to Teach Medication Safety

AUTHORS: Keenya Leggette; Ronda Whipple; Sarah Braga; Andrea McKeever

OBJECTIVE: Identify teaching methodologies for medication safety that improve student performance and confidence.

SELF ASSESSMENT QUESTION: Which teaching methodologies for medication safety improved student performance and confidence?

BACKGROUND: The purpose of the study is to assess student performance and confidence with the integration of simulation to teach medication safety. Effectiveness of teaching is critical for students' development of knowledge and skill sets. Lecture continues to be utilized to help establish foundational knowledge, and active learning methodologies (e.g., simulation) have increased to reinforce classroom instruction and offer opportunities for application.

METHODOLOGY: This study is a prospective evaluation of student performance on medication safety related activities in a school of pharmacy drug information course. Enrolled students voluntarily participated in three quiz knowledge assessments and one activity survey. Each quiz was 10-minutes in duration and consisted of the same five medication safety questions administered at baseline, post didactic lecture, and post simulation. The simulation was a team-based root cause analysis involving various clinical scenarios. The final simulation survey was administered at the completion of all activities and included eight questions related to student confidence and preparedness.

RESULTS: Forty-six students participated in at least one knowledge assessment quiz. Scores were deidentified and composite analysis was performed. Of the 46 participants, 87% completed the baseline quiz, 91% completed the post-didactic quiz, and 89% completed the post-simulation quiz. The mean scores for the quizzes were 73.5%, 79.5%, and 88.8%, respectively. Forty-two students completed the simulation survey (91% of original 46 students). At baseline, 4.76% of the students were extremely confident, 2.38% very confident, 33.33% somewhat confident, 35.71% not so confident, and 23.81% not at all confident in their ability to perform a root cause analysis. Responses were 2.38%, 21.43%, 69.05%, 2.38%, and 4.76% post-lecture, respectively, and 7.14%, 69.05%, 21.43%, 0%, and 2.38% post-activity, respectively.

CONCLUSIONS: Student performance and confidence improved with lecture and simulation.

<https://youtu.be/q-XZI4pLwjc>

B DESCRIPTION AND FINANCIAL IMPACT OF AMBULATORY CARE PHARMACIST INTERVENTIONS WITHIN AN UNDERSERVED PATIENT POPULATION

Room K

Presenters: Salman Hasham

TITLE: DESCRIPTION AND FINANCIAL IMPACT OF AMBULATORY CARE PHARMACIST INTERVENTIONS WITHIN AN UNDERSERVED PATIENT POPULATION

AUTHORS: Salman Hasham, Maria Miller Thurston, Pamela Moye-Dickerson, Teresa Pounds

OBJECTIVE: Characterize and quantify the types of interventions performed by an ambulatory care pharmacy team.

SELF ASSESSMENT QUESTION: What is the financial impact of having an ambulatory care pharmacist at an outpatient clinic?

BACKGROUND: Characterize and quantify the types of interventions performed by an ambulatory care pharmacy team (ACPT).

METHODOLOGY: Retrospective, single-center cohort study designed to characterize and quantify types of ACPT interventions performed, evaluate the financial impact of such interventions, and create a cost template for the interventions using the health system's i-Vent intervention documentation system. Eligible participants included in this study were patients age 18 or older who had an appointment at Wellstar Atlanta Medical Center's Sheffield HealthCare Center from 07/01/2018 to 06/30/2020 and received a pharmacy consult. The following data was collected: intervention types, number of specific interventions, the economic impact per intervention, average cost avoidance per intervention, total economic impact, and total cost avoidance.

RESULTS: There were four major categories of interventions which included patient counseling, drug utilization review, medication therapy management, and drug information. Each category was divided into subcategories, with a total of eighteen different subcategories. There were a total of 1334 interventions documented by ACPT during the two-year study period. The most frequently documented intervention was medication therapy management, with a total of 630 interventions. The economic impact per intervention was approximately \$30 per intervention. The average cost avoidance was estimated to be \$357.62 per intervention. The total economic impact was \$40,020. The total cost avoidance was \$477,065.

CONCLUSIONS: Of the over 1000 ACPT interventions conducted, medication therapy management was the most commonly documented intervention. The interventions have been associated with a significant amount of economic impact and cost avoidance for the health system. The data from the study has allowed for the creation of a cost for specific ambulatory care interventions using the health system's i-Vent intervention documentation system.

B INR Stabilization After Withholding Warfarin for Colonoscopy

Room J

Presenters: Sally Sikes

TITLE: INR Stabilization After Withholding Warfarin for Colonoscopy

AUTHORS: Sally Sikes, PharmD, Kelley Baxter, PharmD, Matt Bibb, PharmD, BCGP

OBJECTIVE: State the median number of days to INR stabilization after withholding warfarin for colonoscopy.

SELF ASSESSMENT QUESTION: What was the median time in days to INR stabilization post-colonoscopy?

BACKGROUND: Determine the time to INR stabilization after withholding warfarin for colonoscopy.

METHODOLOGY: This study is an IRB-approved, retrospective chart review of patients 18 years of age and older enrolled in the AMC who underwent a colonoscopy between September 1, 2016 and September 30, 2018. Patients were excluded if they were not monitored by AMC periprocedurally, had additional procedures performed within 4 weeks of colonoscopy, or were lost to follow-up post-colonoscopy prior to INR stabilization. The primary objective is to determine the time to INR stabilization after withholding warfarin for colonoscopy.

RESULTS: Forty patients were included in the study. The median time to INR stabilization post-colonoscopy was 40 days [IQR, 28-63]. There was no difference in the median warfarin TWD pre-colonoscopy versus post-colonoscopy (41mg [IQR, 33-54]). Patients with documented drug-drug interactions took longer to reach stable INR status (64 days, [IQR, 57-75]) than those without drug-drug interactions (35 days, [IQR, 25-55]). Patients who were on parenteral anticoagulation reached stable INR status quicker than those who were not (28 days [IQR, 23-38] versus 50 days [IQR, 33-54]). Patients considered more stable (INR checking frequency of 5-6 weeks) took longer to reach stabilization post-colonoscopy. These findings are likely due to the more stable patients and patients who didn't require parenteral therapy being scheduled for extended INR checking frequency intervals faster than the other groups.

CONCLUSIONS: The median time to INR stabilization after withholding warfarin for colonoscopy was 40 days.

R Pharmacokinetic Comparison of AUC/MIC Dosing Vancomycin Versus Traditional Trough-Based Dosing in the Critical Care Setting

Room C

Presenters: Courtney McDonald

TITLE: Pharmacokinetic Comparison of AUC/MIC Dosing Vancomycin Versus Traditional Trough-Based Dosing in the Critical Care Setting

AUTHORS: Courtney McDonald, Josh Chestnutt, Deanne Tabb

OBJECTIVE: Describe how the implementation of a Bayesian AUC calculator can affect clinical outcomes.

SELF ASSESSMENT QUESTION: What is the benefit of implementing a Bayesian AUC calculator for vancomycin dosing?

BACKGROUND: Vancomycin has a complex pharmacokinetic profile making dosing and monitoring difficult. Recent studies evaluating dosing based on the area under the curve (AUC) over 24 hours/minimum inhibitory concentration (AUC/MIC) are gaining recommendation. Bayesian models using existing population parameters and patient's individual parameters can be used to calculate a vancomycin dose required to provide specific AUC values. The purpose of this study is to evaluate Bayesian AUC/MIC dosing in the intensive care patients versus the traditional trough-based dosing in preparation for selection of an appropriate AUC-guided dosing tool.

METHODOLOGY: A retrospective chart review was conducted to evaluate trough-based vancomycin dosing protocol between October 1, 2019 through September 30, 2020. Patients who received intravenous vancomycin with at least one level drawn were evaluated. The primary outcome was percentage of patients with predicted AUC values above 600 mg·hr/L as well as predicted AUC values below 400 mg·hr/L using a Bayesian estimated-assisted AUC value.

RESULTS: A total of 54 patients were included in the study. Predicted Bayesian-AUC value was above 600 mg·h/L in 18/54 (33%) of patients potentially increasing risk for acute kidney injury (AKI). Predicted AUC below 400 mg·h/L occurred in 4/54 (7%) of patients indicating potential subtherapeutic dosing.

CONCLUSIONS: Using trough-based dosing showed predicted Bayesian-AUC values above therapeutic goal in one-third of patients increasing risk for AKI. Implementing a Bayesian AUC calculator can allow for a more targeted dose within the predicted AUC while minimizing lab draws. In conclusion, Piedmont can benefit from the use of a Bayesian AUC calculator.

R SAFETY OUTCOMES OF TENECTEPLASE VERSUS ALTEPLASE FOR ACUTE ISCHEMIC STROKE

Room B

Presenters: Mary Walton

TITLE: SAFETY OUTCOMES OF TENECTEPLASE VERSUS ALTEPLASE FOR ACUTE ISCHEMIC STROKE

AUTHORS: Mary N. Walton, Leslie A. Hamilton, Sonia Kennedy, Brian Wiseman, Ann M. Forester, A. Shaun Rowe

OBJECTIVE: Describe the utility of tenecteplase in acute ischemic stroke and its safety versus alteplase.

SELF ASSESSMENT QUESTION: What is one benefit of utilizing tenecteplase as the primary thrombolytic for acute ischemic stroke treatment?

BACKGROUND: Tenecteplase (TNK) is a genetically engineered fibrinolytic with greater specificity for fibrin-bound clots compared to alteplase. Previous studies have shown that tenecteplase is as effective as alteplase for neurologic improvement, and when administered at 0.25 milligrams per kilogram, may have fewer bleeding complications. The purpose of this study is to determine if safety outcomes are different in patients receiving tenecteplase versus alteplase for acute ischemic stroke.

METHODOLOGY: We reviewed patients 18 years and older receiving alteplase or tenecteplase for acute ischemic stroke from July 1, 2016, to December 31, 2020. Patients admitted before April 28, 2020, received alteplase 0.9 mg/kg as a 10% intravenous (IV) bolus over one minute followed by the remaining dose as an IV infusion over one hour. Patients admitted after this date received tenecteplase 0.25 mg/kg IV bolus over five to ten seconds. Any patient transferring from an outside facility were excluded. The primary objective of this study is to determine if major bleeding as defined by the 2005 ISTH or GUSTO definition is significantly different in patients receiving tenecteplase versus alteplase for acute ischemic stroke. The secondary functional objectives are change in modified Rankin scale, post-thrombectomy reperfusion of the ischemic territory based on TIC1 (thrombolysis in cerebral infarction) score, and mortality.

RESULTS: There was no significant difference in major bleeding between alteplase and tenecteplase [45 (25%) vs. 20 (17%), $p=0.104$, respectively]. There was also a trend toward decreased hospital length of stay for tenecteplase compared to alteplase [4 days vs. 6 days, $p<0.0001$]. There was no difference in all-cause inpatient mortality [16 (9%) vs. 5 (4%), $p=0.128$]. Additionally, there were no significant differences in adverse events between the groups [18 (10%) vs. 14 (12%), $p=0.599$].

CONCLUSIONS: Tenecteplase had similar rates of major bleeding versus alteplase in the treatment of acute ischemic stroke. Tenecteplase may be considered as a primary thrombolytic in place of alteplase for acute ischemic stroke.

Presenters: Courtney King

TITLE: Impact of oral vs parenteral anticoagulation on thrombotic events in hospitalized SARS-CoV-2 population

AUTHORS: Courtney King, Abigayle R Campbell, Stephanie A Smith, Lauren R Whitfield

OBJECTIVE: Describe the optimal anticoagulation regimen for hospitalized SARS-CoV-2 positive patients

SELF ASSESSMENT QUESTION: True or false: SARS-CoV-2 positive patients are at an increased risk of thrombotic events due to the virus.

BACKGROUND: The exact mechanism of coagulopathy in SARS-CoV-2 positive population is unknown, however it is likely multifactorial. At this time an optimal anticoagulation strategy has not been identified to prevent thrombotic events in hospitalized patients. The purpose of this study is to determine if oral or parenteral anticoagulation impacts the percentage of inpatient SARS-CoV-2 patients that develop a thrombotic event.

METHODOLOGY: This single-center retrospective chart review included data from March 1, 2020 - November 30, 2020. Patients were enrolled if they were ≥ 18 years old with a positive SARS-CoV-2 diagnosis, hospitalized ≥ 72 hours, and received ≥ 1 dose of an anticoagulant. Patients were excluded if they had an active bleed, platelets $< 50,000$, hemoglobin < 7 , less than 18 years old, had any contraindication to anticoagulation therapy, had history of heparin-induced thrombocytopenia with or without thrombosis, or were pregnant. The primary outcome is the percentage of patients that develop a thrombotic event during hospitalization. Secondary outcomes include percentage of patients with major bleed, time to intensive care unit (ICU) stay, ICU length of stay, hospital length of stay, and in-hospital mortality.

RESULTS: The primary outcome was found to be statistically significant ($p < 0.0001$). Secondary outcomes of ICU length of stay and time to ICU were also statistically significant ($p = 0.008$ and $p = 0.0097$ respectively).

CONCLUSIONS: Although the data is statistically significant, it may not be clinically significant. Multiple confounders were present that could have skewed results. More analysis is needed to determine the effect of anticoagulation on the rate of venous thromboembolism in this patient population.

<https://youtu.be/jUe8xgO9BqE>

Presenters: Stephanie Yasechko

TITLE: Time to Positive Blood Cultures in the Pediatric Intensive Care Unit

AUTHORS: Stephanie Yasechko, Alfred Fernandez, Mark Gonzalez, Preeti Jaggi, and Alison Smith

OBJECTIVE: Describe blood culture TTP in a PICU.

SELF ASSESSMENT QUESTION: What variables may affect blood culture TTP in critically ill pediatric patients?

BACKGROUND: The Surviving Sepsis Campaign recommends obtaining blood cultures before initiation of antibiotics. In most institutions, patients are empirically treated for at least 48 hours while awaiting blood culture results. However, this practice is based on minimal evidence. The aim of our study was to assess time to positive blood cultures in the Pediatric Intensive Care Unit (PICU).

METHODOLOGY: This retrospective chart review included patients 0-20 years of age with positive blood cultures obtained in or within 48 hours of transfer to our PICU between January 1, 2018 and June 30, 2020. Patients' first positive blood culture for a particular organism was used to evaluate the primary end point of time between blood culture draw and gram stain result. Secondary endpoints included: percentage of cultures reported by time and time to positivity (TTP) by organism grown, volume of blood sample, and host risk level.

RESULTS: 164 total cultures were included for analysis. The median TTP was 13.3 hours (IQR 10.7-16.8 hours). By 12, 24, 36, and 48 hours, 37%, 89%, 95%, and 98% of all blood cultures were positive, respectively. Median TTP stratified by host risk level was 13.22 hours for previously healthy patients, 13.95 hours for those standard risk (presence of at least one comorbidity), and 10.58 hours for high risk patients (severely immunocompromised) ($P = 0.001$). Median TTP was found to be independent of blood volume, and no significant difference was seen in TTP for gram negative and gram positive organisms (12.22 vs. 13.86 hours, $P = 0.2$).

CONCLUSIONS: The decision to continue empiric antibiotics in the absence of positive blood cultures could be re-evaluated as early as 24 hours to spare patients from unnecessary antibiotic exposure.

Presenters: Heidi King

TITLE: Evaluation of pharmacy-driven medication access initiatives in the inpatient setting

AUTHORS: Heidi King, Megan Bereda, Carrie Tilton, Jessica Nave, Nicole Metzger

OBJECTIVE: Describe the impact of inpatient pharmacist-driven transitions of care services on clinical outcomes.

SELF ASSESSMENT QUESTION: What impact did pharmacist-driven transitions of care initiatives have on hospital length of stay?

BACKGROUND: Pharmacists can improve transitions of care at discharge through ensuring patients can afford their discharge prescriptions, but there is limited published data on whether these interventions improve clinical outcomes. The purpose of this study is to evaluate the impact of medication access interventions prior to discharge by pharmacy personnel.

METHODOLOGY: This is a single center retrospective cohort study of adult patients admitted from January 1, 2014 to August 31, 2020. The primary outcome is hospital length of stay. Secondary outcomes include all-cause readmissions at 7-days, 30-days, and 90-days and a summary of the type of interventions, success in approval, turnaround time, cost savings, and adherence.

RESULTS: The average length of stay for case patients was 9.1 ± 9.7 days. Anticoagulants were the most common medication pharmacists intervened on. After pharmacist interventions, most copays for medications were < \$10, and most interventions took between 30 minutes to 1 hour to complete.

CONCLUSIONS: Pharmacists were able to make interventions on 155 case patients.

PRESENTATION LINK: <https://youtu.be/73zkyloQWWo>

Presenters: Richard Liu

TITLE: Evaluation of Antimicrobial Prescribing and Follow-up for Urinary Cultures in the Advanced Care Center (ACC)

AUTHORS: Richard Liu, Gabby Furgieue, Ruaa Al-Baldawi, and Kayla Randle

OBJECTIVE: Evaluate the efficacy and appropriateness of antimicrobial prescribing and urine culture follow-up for urinary tract infections (UTIs) in ACCs

SELF ASSESSMENT QUESTION: Describe a benefit of ASP implementation?

BACKGROUND: Antibiotic stewardship programs (ASPs) are essential in slowing antimicrobial resistance as well as improve timely antimicrobial selections, reduce antibiotic overuse, and decrease unnecessary adverse drug events. Pharmacist-led ASPs, focusing on urine cultures and follow-up for UTIs, presents an effective method for ASP/outpatient pharmacy service expansion. Currently, a pharmacist-created UTI prescribing orderset, SmartRx, is available to improve guideline-concordant prescribing. However, limited data exists on the appropriateness/timeliness of antimicrobial prescribing and urine culture follow-up practices.

METHODOLOGY: This was a multi-site, retrospective observational study examining antimicrobials prescribed and timeliness of follow-up after a positive urine culture in patients discharged from ACC clinics. Included members were discharged between January 1, 2019 to December 31, 2019 with a positive urine culture. Excluded were ≤ 18 years-old and/or were admitted to the hospital or transferred to another institution. JIRA reports and electronic medical records were utilized to evaluate prescribing patterns, follow-ups, and timeliness of patient outreach.

RESULTS: Overall, 1,418 KPGA members were evaluated and 1,309 patients were prescribed empiric antibiotic therapy for a UTI. Only 41 encounters (3.13%) utilized SmartRx at point of prescribing. The most prescribed empiric agent was ciprofloxacin, followed by nitrofurantoin and cephalexin. Average timeframe for discharge to culture result, culture result to closed encounter, and culture result to patient contact (if needed) was 59 hours, 44 hours, and 7.65 hours, respectively.

CONCLUSIONS: Currently, ACCs are overutilizing non-preferred first-line agents for the treatment of UTIs and inefficiencies in patient outreach exist following discharge. These contributes to justification for increased ASP efforts in our ACCs and pharmacist involvement. Possible optimization includes encouraging SmartRx utilization, expanding provider knowledge on first-line UTI agents, and improving workflow deficiencies to decrease time to action on culture results.

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9:30am – 9:45am

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On April 29th, you will need to be present in your scheduled room during your scheduled session. The moderator/evaluator schedule was sent out via email and is posted under the documents tab in SCHED.

Moderators: Please view and evaluate all the abstracts in the session & room you were assigned, plus as many additional abstracts as you would like between now and April 28th. To do so,

- Click on the abstract title
- Check the radio button to add to your SCHED
- Read over the presenter's profile and view the abstract
- Watch the recorded presentation
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APRIL 29 • THURSDAY

S Welcome

TBA

PINNED

8:00am – 8:30am

Presenters: Deborah Hobbs

S Clinician Well-Being and Resilience

TBA

PINNED

8:30am – 9:30am

Presenters: Paul C. Walker, Pharm.D., FASHP

Please click the videostream link to attend Dr. Walker's presentation.

PINNED
9:30am – 3:00pm

S **Live Q&A**

TBA

Everyone: click the yellow "Open Zoom" button to enter the Zoom meeting. Once in the meeting, you may move to breakout rooms.

Presenters: enter the breakout room based on the time and room your presentation is listed under on the schedule. For example, if your presentation is listed as 04/20/2021 9:30-9:35 in Room A, you would go to breakout room A for session I. During the times you are not assigned you may enter breakout rooms of those you reviewed to ask questions.

Moderators and evaluators: enter the breakout room you were assigned to during your assigned session. Be sure to complete a structured evaluation for each presenter in the session you are assigned. Link to the evaluation is below. During unassigned times, enter the breakout rooms of others you reviewed, ask questions if needed, and complete a structured evaluation for them as well.

Moderators: You will be made a co-host of your room in your session. Please keep an eye on time. Each presenter has 5 mins for Q&A. Give a time warning when the limit is approaching. There is an additional 5 minutes built into each session as a buffer in case presenters go a little over their time. Try to keep everyone as close to their timeframe as possible. Also, if someone has background noise that is disruptive, you have the ability to mute anyone in the room.

Evaluators: Please have 1-2 questions ready for each presenter to keep the session moving along.

S Day 4

Room A

PINNED

9:30am – 9:45am

Welcome to SERC 2021!

Sessions/Abstracts are open for viewing and evaluating.

Presenters: Please view and evaluate as many abstracts as you would like. To do so,

- click on the abstract title you would like to view
- Check the radio button to add to your SCHED
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- If you have any questions for the presenter, please have them ready during the live Q&A on April 29th.

On April 29th, you will need to be present in your scheduled room at your scheduled time to answer questions regarding your own abstract. The times and rooms for April 29th are exactly the same as the times and rooms you see on SCHED. For example, if your presentation is listed in SCHED for 4/20/2021 11:20-11:25AM in Room C then you will need to be present in the Zoom meeting breakout room C during Session III. The link to the Zoom meeting is located in the SCHED session on April 29th.

Evaluators: Please view and evaluate all the abstracts in the session & room you were assigned, plus as many additional abstracts as you would like between now and April 28th. To do so,

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S Day 5

Room A

PINNED

9:30am – 9:45am

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S Day 6

Room A

PINNED

9:30am – 9:45am

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APRIL 29 • THURSDAY

<p>PINNED 8:00am – 8:30am</p>	<p>S Welcome <i>Presenters: Deborah Hobbs</i></p>	<p>TBA</p>
<p>PINNED 8:30am – 9:30am</p>	<p>S Clinician Well-Being and Resilience <i>Presenters: Paul C. Walker, Pharm.D., FASHP</i> Please click the videostream link to attend Dr. Walker's presentation.</p>	<p>TBA</p>
<p>PINNED 9:30am – 3:00pm</p>	<p>S Live Q&A Everyone: click the yellow "Open Zoom" button to enter the Zoom meeting. Once in the meeting, you may move to breakout rooms.</p> <p>Presenters: enter the breakout room based on the time and room your presentation is listed under on the schedule. For example, if your presentation is listed as 04/20/2021 9:30-9:35 in Room A, you would go to breakout room A for session I. During the times you are not assigned you may enter breakout rooms of those you reviewed to ask questions.</p> <p>Moderators and evaluators: enter the breakout room you were assigned to during your assigned session. Be sure to complete a structured evaluation for each presenter in the session you are assigned. Link to the evaluation is below. During unassigned times, enter the breakout rooms of others you reviewed, ask questions if needed, and complete a structured evaluation for them as well.</p> <p>Moderators: You will be made a co-host of your room in your session. Please keep an eye on time. Each presenter has 5 mins for Q&A. Give a time warning when the limit is approaching. There is an additional 5 minutes built into each session as a buffer in case presenters go a little over their time. Try to keep everyone as close to their timeframe as possible. Also, if someone has background noise that is disruptive, you have the ability to mute anyone in the room.</p> <p>Evaluators: Please have 1-2 questions ready for each presenter to keep the session moving along.</p>	<p>TBA</p>