2024 Southeastern Residency Conference

[ ] 'Administration (ADM)' [M] 'Ambulatory Care (AMB)' [C] 'Cardiology (CAR)' [N] 'Community Pharmacy (CP)' [R] 'Critical Care/Emergency Medicine (CCM)'

[G] Geriatrics (GER) [F] 'Infectious Disease (ID)' [T] 'Internal Medicine (IM)' [D] 'Medication Safety (MES)' [L] 'Neurology (NEU)' [Y] 'Oncology (ONC)'

[P] Pain Management (PM) [E] 'Pediatric (PED)' [S] Psychiatric Pharmacy (PSY) [A] 'Transitional Care (TC)' [1] 'Transplant (TRP)'

APRIL 24 • WEDNESDAY

6:00pm – 9:00pm	**Early Check-In** Join us at Creature Comforts for a casual reception if you're in town early!	Creature Comforts (271 W Hancock Ave, Athens, GA 30601)

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APRIL 25 • THURSDAY

PINNED
8:00am – 8:10am

Welcome
Presenters: Karen Babb
Welcome to the 2024 Southeastern Residency Conference!

Ballroom EF

PINNED
8:10am – 9:00am

Keynote Address
Presenters: Marjorie Phillips

Ballroom EF

9:10am – 9:25am M **Minimizing Hypoglycemia Risk through the Deprescribing of Sulfonylureas at the Salisbury VA** Athena G

Presenters: Vanessa Poirier

TITLE: Minimizing Hypoglycemia Risk through the Deprescribing of Sulfonylureas at the Salisbury VA
AUTHORS: Vanessa Poirier, Camille Robinette, Carla Hatley and Allison Schmitz
OBJECTIVE: Identify patients who may be candidates for de-escalation of type 2 diabetes (T2DM) regimens and de-intensification of treatment goals.
SELF ASSESSMENT QUESTION: Which of the following may increase a patient's risk of hypoglycemia?

BACKGROUND: The role of sulfonylureas (SUs) in the management of T2DM has evolved with the approval of glucagon-like peptide-1 (GLP-1) receptor agonists and sodium-glucose cotransporter 2 (SGLT2) inhibitors. These agents exhibit proven cardiorenal benefits, weight loss effects, and reduced hypoglycemia risk. These benefits were recognized in the 2019 American Diabetes Association (ADA) treatment guideline, shifting SU's place in therapy to patients requiring additional A1c lowering despite maximally tolerated first- and second-line therapies or patients with cost barriers. SUs carry the highest risk of hypoglycemia of the oral antidiabetic agents, which is amplified in the presence of additional risk factors such as renal dysfunction, cognitive impairment, concomitant insulin therapy, and advanced age. The 2023 Beers Criteria recommends avoidance of SUs in patients over 65 years of age unless significant barriers to the safer, more effective options exist. Concomitant use of insulin further increases hypoglycemia risk; therefore, this combination should be avoided, especially in these high-risk populations. Many high-risk Veterans within the Salisbury Veterans Affairs Health Care System (SVAHCS) remain on combination SU and insulin. The purpose of this project is to utilize pharmacists to reduce hypoglycemia risk through the deprescribing of SUs in Veterans over 65 years of age, on concomitant insulin therapy, and with additional hypoglycemia risk factors at the SVAHCS.

METHODOLOGY: This was a single-center, prospective quality improvement project conducted at the SVAHCS. Veterans eligible for inclusion had a most recent A1c of less than 7%, filled a prescription for insulin and a SU within the past 90 days or had documented non-VA use, and at least one of the following: age of 75 years or greater, dementia or cognitive impairment, or most recent serum creatinine (SCr) greater than 1.7 mg/dL. Veterans were excluded if their A1c or SCr had not been updated within the last 18 months, if they resided in a long-term care facility, if insulin or SU was discontinued prior to visit, if they declined visit, scheduling attempts failed, or Veteran expired. All eligible Veterans within the SVAHCS were identified in October 2023 through the Hypoglycemia Safety Initiative (HSI) dashboard. Chart reviews were performed using a standardized template to document findings and recommend deprescribing of SUs when appropriate. When indicated, an appointment with a Clinical Pharmacist Practitioner (CPP) was requested to discuss the potential deprescribing of the SU. Educational materials explaining hypoglycemia risk, avoidance, and treatment were mailed to each Veteran following chart review. The primary endpoint of the project was the frequency of SU discontinuation. Secondary endpoints included number of SU and insulin dose reductions, number of insulin discontinuations, changes in SU or insulin administration time, frequency of resolved hypoglycemia, and number of glucose tablet prescriptions provided. All data was analyzed using descriptive statistics.

RESULTS: A total of 35 Veterans met inclusion criteria. Average age (±SD) of the included Veterans was 75.5 (±6.5) years of age, 26 (74.3%) of which were greater than 75 years of age, 35 (100%) were male, 3 (8.6%) were prescribed rapid- or short-acting isulin, and 18 (51.4%) reported ongoing episodes of hypoglycemia at the time of the initial visit. Among the 35 included Veterans, the average A1c (±SD) was 6.28% (±0.47). SUs were successfully discontinued in a total of 19 (54.3%) Veterans at the time of data collection. A total of 60

interventions were made, which, in addition to the primary endpoint, included 9 (15%) SU dose reductions, 6 (10%) insulin dose reductions, 4 (7%) insulin discontinuations, 2 (3%) and 1 (1%) changes in SU and insulin administration times, respectively, and 19 (32%) glucose tablet prescriptions provided. Of the 18 Veterans who reported active hypoglycemia at the time of initial encounter, 11 (61%) reported resolution of hypoglycemia following intervention.

CONCLUSIONS: CPPs may play a crucial role in promoting the deintensification of treatment goals and deprescribing of antidiabetic agents with high hypoglycemia risk in older adults with T2DM.

9:10am – 9:25am C **Evaluation of warfarin loading doses vs resumption of maintenance therapy following interruption** Parthenon 2

Presenters: Breanne Wofford

TITLE: Evaluation of warfarin loading doses vs resumption of maintenance therapy following interruption

AUTHORS: B Wofford, K Keller, E Anderson, S Hardeman, S Wright, SC Pearson, R Heidel

OBJECTIVE: Describe a strategy for the re-initiation of warfarin after interruption during inpatient admissions

SELF ASSESSMENT QUESTION: Why were patients in our study excluded if they were on concomitant argatroban?

BACKGROUND: The preponderance of literature for initiating warfarin is in the outpatient setting; however, the data surrounding re-initiation of warfarin following inpatient procedures or interruption of therapy is considerably more limited. While a previous study found that a loading dose following inpatient interruption could return patients to a therapeutic INR quicker, there is a safety concern for increased bleeding risk and supratherapeutic INR values. Our aim is to expand on these findings by determining if the loading dose of 1.5 times the pre-admission dose is necessary versus simply restarting the pre-admission dose.

METHODOLOGY: Retrospective cohort study that evaluated the effectiveness of a warfarin loading dose versus resumption of maintenance therapy in patients with warfarin therapy interruption. Included patients were adults receiving at least 2 doses of warfarin while inpatient, subtherapeutic INR less than 1.5 immediately prior to restarting warfarin inpatient and had a documented INR value within 5 days of restarting warfarin. Patients that received argatroban or were considered a new start to warfarin were excluded. The study period extended from June 2017 to June 2023 to ensure an adequate number of patients were included. Data was collected from the electronic health record using REDCap. Data points collected included baseline characteristics, warfarin dose, INR, and bridging mechanism. Statistical analysis for the primary endpoint was done using a chi-square test by dividing patients into five groups. The primary endpoint was INR at day five or at discharge, if prior to five days, and the INR groups were as follows, less than 2, 2.00 to 2.50, 2.51 to 3.00, 3.01 to 3.50, and above 3.51.

RESULTS: For the primary noninferiority analysis, it was found that the loading dose was noninferior to the maintenance dose p 0.015. For the group comparisons of categorical variables, no significant differences were detected between the treatment groups for history of liver dysfunction, p 0.25, incidence of major bleeding after reinitiation of warfarin, p 0.26, incidence of thrombosis/blood clot after reinitiation of warfarin, p 1.00, or incidence of supratherapeutic INR at seven days after reinitiation of warfarin p 0.47. There were also no significant differences found between the loading and maintenance dosing groups based on initial INR prior to warfarin reinitiation p 0.93, time to goal INR p 0.72, incidence of supratherapeutic INR after warfarin reinitiation p 0.45, or the outcome of INR value at 5 days or discharge if LOS was less than 5 days p 0.34.

CONCLUSIONS: Administering a warfarin loading dose was non-inferior to resumption of maintenance dosing following inpatient therapy interruption in returning patients to therapeutic INR levels. Therefore, the authors of this study concluded that administration of warfarin loading doses may not be necessary to return patients to therapeutic INR post procedure. There were also no differences seen between the number of patients that achieved therapeutic INR levels at 7 days, amount of time (days) it took each group to achieve a therapeutic INR, or incidence of bleeding. Future research opportunities: Future research studies should aim to confirm and expand on our findings with a multi-center study ideally to make them more generalizable.

9:10am – 9:25am F **Clinical Outcomes of Protocolized Beta-lactam Dosing in Critically-Ill Patients with Hospital- or Ventilator-Acquired Pneumonia and Augmented Renal Clearance** Athena C

Presenters: Jared Cvetko

TITLE: Clinical Outcomes of Protocolized Beta-lactam Dosing in Critically-Ill Patients

AUTHORS: Jared Cvetko, Sarah Frye, Evan Lantz, Martin Gordon, Stephen Lindley

OBJECTIVE: Describe the clinical outcomes of protocolized beta-lactam dosing in critically-ill patients with hopsital- or ventilator-acquired pneumonia and augmented renal clearance.

SELF ASSESSMENT QUESTION: (True or False) There was a statistical difference in HAP/VAP recurrence of the index organism within 28 days or end of hospitalization.

BACKGROUND: Augmented renal clearance (ARC) is a phenomenon that occurs when the kidneys demonstrate increased filtration activity leading to potentially subtherapeutic concentrations of renally cleared antibiotics. Beta-lactams are the most prescribed antibiotic class for the treatment of hospital- or ventilator-acquired pneumonia (HAP/VAP). These agents utilize time-dependent killing with maximum effect occurring when the free drug concentration is greater than 4 times the MIC of the pathogen during the dosing interval. There have been few studies looking into beta-lactam dosing in ARC patients with HAP/VAP. A single center study was conducted that demonstrated lower rates of therapeutic failure or HAP/VAP relapse, mechanical ventilation duration, and intensive care unit (ICU) length of stay in the treatment group receiving increased beta-lactam dosing regimens with ARC. The purpose of this study was to compare the clinical outcomes of our institutional protocolized antibiotic dosing regimen in critically-ill patients with HAP/VAP and ARC compared to critically-ill patients with HAP/VAP without ARC.

METHODOLOGY: We performed a single-center, retrospective study comparing the efficacy of a protocolized institutional antibiotic dosing regimen in critically-ill patients with HAP/VAP and ARC compared to critically-ill patients with HAP/VAP without ARC. ARC was defined as having a creatinine clearance greater than 130 mL/min anytime during antibiotic administration. The primary endpoint was HAP/VAP recurrence of the index organism within 28 days or end-of-hospitalization. The secondary outcomes were in-hospital mortality, ICU mortality, ICU length of stay, hospital length of stay, duration requiring mechanical ventilation, and secondary acquisition of antimicrobial resistance from respiratory culture within 28 days or end-of-hospitalization.

RESULTS: For our study, 155 patients were reviewed, with a total of 122 patients meeting at least one exclusion criteria. Of the 33 patients included in the analysis, 11 were assigned to the ARC group, and 22 were assigned to the non-ARC group. Baseline characteristics were evenly distributed except for age at encounter (42 vs 67, p less than 0.001), gender (9.1% female vs 41%, p=0.11), polymicrobial infection (27.3% vs 50%, p=0.28), and combined antimicrobial therapy (72.7% vs 45.5%, p=0.27). Once the study concluded, 45.5% of patients in the ARC group versus 41% in the non-ARC group had HAP/VAP recurrence of the index organism within 28 days or end-of-hospitalization (p=1). For the secondary outcomes, results for the ARC group versus the non-ARC group for in-hospital mortality (18.2% vs 32%, p=0.68), secondary acquisition of antimicrobial resistance from respiratory culture within 28 days or end-of-hospitalization (9.1% vs 13.6%, p=1), duration requiring mechanical ventilation (16.8 days vs 12.4 days, p=0.28), ICU length of stay (23.8 days vs 19.3 days, p=0.19), ICU mortality (9.1% vs 22.7%, p=0.64), and hospital length of stay (38.3 days vs 30.1 days, p=0.18) were calculated.

CONCLUSIONS: Among critically-ill patients admitted to the ICU with ARC and HAP/VAP, there was no significant difference between HAP/VAP recurrence of the index organism within 28 days or end of hospitalization compared to critically-ill patients admitted to the ICU without ARC. Among the secondary outcomes, there were no statistical differences found. However, despite not being statistically significant, there was a numerical difference seen in duration requiring mechanical ventilation, ICU length of stay, hospital length of stay, and ICU mortality. The study was underpowered due to low number of patients with ARC.

9:10am – 9:25am M **Pharmacist Intervention to Improve OB Provider Confidence in CGMS Interpretation and Billing** Athena H

Presenters: Skye Mitchell

TITLE: Pharmacist Intervention to Improve OB Provider Confidence in CGMS Interpretation and Billing

AUTHORS: J Skye Mitchell; Jessica Odom; Amy Robinson; Megan Schellinger; Alex Ewing; Valerie Lironis

OBJECTIVE: Identify top barriers of CGMS utilization in a provider's practice.

SELF ASSESSMENT QUESTION: What are the top reasons given by providers who are hesitant to use CGMS technology for their patients? (Select all the apply) A. Perceived difficulty of learning how to implement new technology. B. Belief that CGMS technology does not provide benefit to their patients. C. Lack of time resources to implement CGMS technology for their patients. D. Concern that patients do not want to use CGMS technology.

BACKGROUND: Pregnant patients with diabetes face increased risks of complications like congenital abnormalities, macrosomia, neonatal hypoglycemia, eclampsia, pre-term birth, and perinatal death. The American College of Obstetricians and Gynecologists (ACOG) and American Diabetes Association (ADA) recommend lower fasting and post prandial blood glucose goals than non-pregnant adults to mitigate these risks. Continuous glucose monitoring system (CGMS) use has been shown to improve outcomes in patients with type 1 diabetes with ongoing research for patients with type 2 and gestational diabetes. However, limited provider readiness to adopt CGMS due to time constraints and technological challenges highlights the need for education and research. This study evaluates an educational intervention for obstetric (OB) providers to enhance their knowledge, confidence in CGMS use, and billing practices for CGMS data evaluation reimbursement.

METHODOLOGY: A single-center quasi-experimental study assessed the impact of a 30-minute live learning module on high-risk OB providers. The module focused on CGMS report interpretation and billing for pregnant patients. Pre and post-module surveys, along with a 3-month follow-up, evaluated knowledge and confidence. A retrospective review of CGMS interpretation and billing data from December 2023 to February 2024 was conducted. The primary outcome measures the change in OB providers' confidence and knowledge scores immediately before and after the education. Secondary outcomes include changes in scores over 3 months, billing opportunities for CGMS interpretation and training, and revenue generated.

RESULTS: Twenty-one OB providers participated in the learning module, the pre-assessment, and immediate-post assessment. Eleven of the original 21 (52.4%) OB providers participated in the 3-month post assessment. Both knowledge and confidence scores were significantly higher immediately after the educational session than prior to completion, [knowledge score mean difference: 5.38; $p < 0.001$], [confidence score mean difference: 6.76; $p < 0.001$] and significantly higher at the 3-month post assessment compared to the pre-assessment, [knowledge score mean difference: 3.33; $p = 0.004$], [confidence score mean difference: 7.67; $p = 0.004$. The providers successfully billed 70.4% of their CGMS opportunities from December 2023 through February 2024, though there was a fall in successfully billed opportunities over the three months, December 2023 (89.7%), January 2024 (72%), February 2024 (35.3%).

CONCLUSIONS: The educational intervention increased OB providers knowledge and confidence in CGMS interpretation and billing both immediately after the educational intervention and 3 months later. Providers were able to apply this knowledge to successfully bill for CGMS interpretation following the intervention. However, there is still an opportunity to engage providers further to bill for CGMS interpretation more consistently.

9:10am – 9:25am N **Implementation of pharmacist-led hormonal contraceptive program in an urban community pharmacy** Athena I

Presenters: Jennifer Spallina

TITLE: Implementation of pharmacist-led hormonal contraceptive program in an urban community pharmacy

AUTHORS: Jennifer Spallina, Deanna Thompson, Michelle Leveris, Taylor Wells, Halee Parham

OBJECTIVE: Evaluate the benefit of a pharmacist-led hormonal contraceptive program

SELF ASSESSMENT QUESTION: Which of the following is not included in the NC standing order for pharmacists to prescribe?

BACKGROUND: In 2019, the CDC estimated that 55.1% of North Carolina women aged 18-49 living in an urban county had an ongoing need for contraceptive services. On August 19, 2021, Governor Cooper signed S.L 2021-110, an act authorizing immunizing pharmacists to dispense, deliver, and administer certain treatments and medications in North Carolina. As of February 1, 2022, this act included self-administered oral and transdermal contraceptives. Implementation of a pharmacist-led hormonal contraceptive prescription program in an urban community pharmacy will allow for better access to those locally who are in need, with an aim to increase contraceptive adherence and reduce unintended pregnancies.

METHODOLOGY: This was a single center, quality improvement study aimed to evaluate hormonal contraceptive prescribing patterns pre and post pharmacist-led contraceptive prescribing within this pharmacy. The study population was determined by the number of patients eligible for inclusion and who filled contraceptive prescriptions at Center Pharmacy between May 1st, 2023, and December 31st, 2023. Patients receiving hormonal contraceptives prescribed by pharmacists were screened using the patient questionnaire as indicated through standing order (S.L 2021-220). The primary objective was to compare hormonal contraceptive adherence at 4 months in patients enrolled in the pharmacist-led contraceptive program versus those receiving contraceptive therapy prior to implementation. Secondary objectives were to compare adherence at 4 months between hormonal contraceptives provided (combined oral contraceptive pill, progestin only pill, transdermal patch), describe the percentage of contraceptives prescribed by pharmacists versus providers after program implementation, and describe the mean monthly contraceptive prescriptions dispensed 4 months before and 4 months after program implementation.

RESULTS: The implementation of a pharmacist-led hormonal contraceptive prescription program aimed to increase access to those in need, increase contraceptive adherence and reduce unintended pregnancies. Of the105 participants were included in this study, 102 obtained self-administered contraceptive prescriptions in the pre-implementation phase and 3 participants obtained prescriptions for hormonal contraceptives from a pharmacist at Center Pharmacy during program implementation. Implementation of this service provided 1 participant with the progestin only pill (POP) and 2 participants with the transdermal patch. Prior to implementation the average PDC for the POP was 0.76 (n=8) and an increase in PDC to 0.86 was observed in the singular patient who obtained their pharmacist prescribed POP. Similarly, prior to implementation the average PDC for the transdermal patch was 0.71 (n=6) and an increase in PDC to 1.00 was observed amongst the two participants who obtained their pharmacist prescribed transdermal patch. Notably, no combined oral contraceptive pills were prescribed by pharmacists in the post-implementation phase. Lastly, an average of 39 hormonal contraceptives were dispensed per month at Center Pharmacy in the 4 months prior to and in the 4 months after program implementation.

CONCLUSIONS: Due to the small sample size and lack of power in this study, no conclusions regarding the impact of pharmacist-led contraceptive prescribing on contraceptive adherence can be made.

9:10am – 9:25am R **Effect of reversal agents for Xa-inhibitor associated gastrointestinal bleeds** Olympia 2

Presenters: Anna Phillips

TITLE: Effect of reversal agents for Xa-inhibitor associated gastrointestinal bleeds

AUTHORS: Anna Phillips, John Carr, Devon Burhoe, Dustin Orvin

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Several prominent medical organizations endorse the use of andexanet alfa and 4-factor prothrombin complex concentrates (4FPCC) as reversal agents for managing major life-threatening gastrointestinal (GI) bleeding associated with apixaban and rivaroxaban. This study aims to assess whether administering these reversal agents in Xa-inhibitor-related GI bleeds improves hemostatic efficacy and impacts 30-day thromboembolic events, mortality rates, and hospital stays compared to standard of care.

METHODOLOGY: Several prominent medical organizations endorse the use of andexanet alfa and 4-factor prothrombin complex concentrates (4FPCC) as reversal agents for managing major life-threatening gastrointestinal (GI) bleeding associated with apixaban and rivaroxaban. This study aims to assess whether administering these reversal agents in Xa-inhibitor-related GI bleeds improves hemostatic efficacy and impacts 30-day thromboembolic events, mortality rates, and hospital stays compared to standard of care.

RESULTS: A total of 49 patients met criteria for inclusion, with 25 patients receiving reversal agents and 24 patients receiving standard of care. The mean age was 72 years (range 47 - 97) and 58% of patients were female. Atrial fibrillation was the most common indication for anticoagulation, with 69% of patients possessing this comorbidity. Hemostatic efficacy and 30-day thromboembolic events did not differ between the two groups (p-values of 0.32 and 0.66 respectively), however mortality was significantly higher in the reversal agent group ($p = 0.002$).

CONCLUSIONS: Although hemostatic efficacy and 30-day thromboembolic events did not differ between the two treatment groups, patients who received anticoagulation reversal had higher rates of mortality. Potential reasons for this could include uncollected confounding factors, including severity of illness at baseline. Additionally, differences in hemostatic efficacy and 30-day thromboembolic events may not have been detected due to the small sample size of this study. Future prospective, reversal-specific, adequately powered studies are warranted to further elucidate the potential role for reversal agents in Xa-inhibitor-related GI bleeds.

9:10am – 9:25am R **Evaluation of Alteplase for Pulmonary Embolism** Olympia 1

Presenters: Evan Hardbeck

TITLE: Evaluation of Alteplase for Pulmonary Embolism

AUTHORS: Evan Hardbeck; Tu-Trinh Tran; Christele Francois; Neha Naik; George Hughes

OBJECTIVE: Identify the risks and benefits of alteplase administration in cardiac arrest

SELF ASSESSMENT QUESTION:

BACKGROUND: Advanced Cardiovascular Life Support (ACLS) and American Heart Association (AHA) guidelines suggest consideration of thrombolytic therapy for cardiac arrest due to presumed or known pulmonary embolism (PE). The use of fibrin-specific tissue plasminogen activator (tPA) results in rapid thrombolysis which carries rare but significant risk of bleeding. Due to conflicting outcomes from available literature, there is a lack of clear mortality outcomes and dosing strategy, thus leaving the administration of thrombolytics in this setting controversial. The purpose of this study is to evaluate the safety and efficacy of alteplase use in cardiac arrest for suspected or confirmed PE.

METHODOLOGY: This is a multicenter, institutional review board approved, retrospective cohort analysis evaluating the safety and efficacy of tPA in cardiac arrest for suspected or confirmed PE at Emory University Hospital or Emory University Hospital Midtown from January 1, 2018 to January 1, 2023. Adult patients who received alteplase doses of at least 50 mg in the setting of cardiac arrest were included in the study. Those who were pregnant, incarcerated or with a documented tPA absolute contraindication were excluded. The primary outcome is the incidence of patients achieving return of spontaneous circulation (ROSC). Secondary outcomes include incidence of survival to hospital discharge, 30-day survival, bleeding events, tPA dosing, cardiopulmonary resuscitation (CPR) time, time to ROSC, time from start of CPR to tPA administration, heparin drip initiation, intensive care unit (ICU) length of stay (LOS), and hospital LOS. Descriptive statistics will be utilized to characterize baseline demographics and outcome measures.

RESULTS: Nineteen patients (40%) were able to achieve ROSC with only three patients surviving to discharge (6%). The most common dosing strategy was tPA as a 50 mg bolus with two survivors receiving one bolus of 50 mg and one survivor receiving one bolus of 100 mg. Five patients (11%) achieved 30-day survival. CPR was performed for 46 ± 26 minutes with time to ROSC after 40 ± 29 minutes. On average, the time to tPA administration was 24 ± 20 minutes. Bleeding events occurred in five patients (11%) with three patients (6%) experiencing a major bleeding event. Heparin drips were initiated in 22 patients (46%). The average hospital LOS was 7 ± 11 days while the average ICU LOS was 10 ± 9 days.

CONCLUSIONS: This study shows low incidence of ROSC, 30-day survival, and survival to discharge despite receiving at least 50 mg of alteplase in the setting of cardiac arrest due to suspected or confirmed PE. Additionally, there is a low incidence of major bleeding events amongst patients who received ROSC. Due to the low incidence of bleeding and the opportunity to achieve ROSC, the benefits of tPA administration outweigh the risks. Prospective, randomized control trials are warranted to determine alteplase usage in cardiac arrest secondary to pulmonary embolism.

9:10am – 9:25am R **Impact of COVID-19 Practice Changes on Patients Presenting with ST-Segment Myocardial Infarction** Parthenon 1

Presenters: Christina Capo

TITLE: Impact of COVID-19 Practice Changes on Patients Presenting with ST-Segment Myocardial Infarction

AUTHORS: Christina Capo, Ginger Gamble, Chelsie Sanders

OBJECTIVE: State if there is a signicant difference between the pre-COVID and COVID groups for rates of in-hospital mortality following STEMI activation.

SELF ASSESSMENT QUESTION: True/False: There was a significant difference seen between the COVID and pre-COVID groups for rates of in-hospital mortality.

BACKGROUND: In STEMI treatment, early reperfusion is critically important, with door-to-balloon time used as a surrogate marker for this outcome. Traditionally, the standard of care for STEMI is primary percutaneous coronary intervention (PPCI); however, during the COVID-19 pandemic, some hospitals moved to a thrombolytic first strategy. Additionally, STEMI patients in the pandemic presented later to the hospital and had further delays in door-to-balloon time leading to longer ischemic times and larger infarcts, both leading to increased morbidity and mortality. Despite the delays and extra considerations for PPCI during COVID-19, the Society for Cardiovascular Angiography and Interventions (SCAI), the American College of Cardiology (ACC), and the American College of Emergency Physicians (ACEP) still recommended primary PCI as the standard of care in patients presenting to PCI-capable facilities within 90 minutes of first medical contact due to its superior efficacy and significantly lower risk of bleeding compared with fibrinolytic therapy. Given the variability of strategies for the management of STEMI during the COVID-19 pandemic, further data is needed regarding changes in practice and how they relate to patient outcomes during this timeframe. This study aimed to determine the differences in practice in the emergency department at ECUHMC related to STEMI care during the COVID-19 pandemic and evaluate patient outcomes in an effort to guide future practice.

METHODOLOGY: This was a single-center, retrospective, IRB-reviewed and exempt, cohort study. Patients activated as a STEMI alert from a COVID pandemic cohort (March 22, 2020 to December 31, 2020) and a pre-COVID cohort (July 1, 2015 to March 21, 2020) were identified for analysis, and data was obtained from electronic health records. Patients in the pandemic cohort were numerically matched with patients from a pre-pandemic cohort in a 1:1 fashion. The primary endpoint was in-hospital mortality from any cause. Secondary outcomes included the following: receipt of thrombolytic, door-to-balloon time, door-to-thrombolytic time, total ischemic time, mechanical-circulatory support, in-hospital cardiac arrest, major bleeding, acute-onset arrhythmias, pacemaker placement, and incidence of major cardiac adverse events (MACE) within 30 days of STEMI.

RESULTS: For this study, 162 STEMI patients were analyzed, with 81 patients in each group (Pre-COVID vs.COVID). Overall rates of the primary outcome in-hospital mortality were low, with 3 patients in eachgroup (2% vs. 2%, p = 1). There was a statistically significant difference in choice of reperfusion strategybetween the pre-COVID and COVID groups (p <0.0001), with 45 patients in the COVID group receivingfibrinolytics compared to one patient in the pre-COVID group. Additionally, there were significantlymore patients in the COVID groups who received rescue PCI (p<0.0001), with 6 patients in the pre-COVID group compared to 34 in the COVID group. There were no statistically significant differences inuse of mechanical circulatory support, in-hospital cardiac

arrest, major bleeding, acute-onsetarrhythmia, or pacemaker placement between groups. Interestingly, there was a statistically significantdifference in median total ischemic time between groups, with the pre-COVID median being 233minutes compared to 142 in the COVID group (p=0.007). The COVID group had significantly morepatients with new or worsening heart failure compared with the pre-COVID group (11 patients vs. 1patient, respectively; p=0.0017).

CONCLUSIONS: During the COVID-19 pandemic, ECU Health favored a thrombolytics first strategy, whichresulted in significantly higher rates of rescue PCI but similar rates of in-hospital mortality. Despitesimilarities in mortality between groups, the significantly higher rates of new or worsening heart failurein the COVID group suggest higher morbidity. Further studies with larger sample sizes will be beneficialto fully assess the differences in outcomes during the COVID-19 pandemic for STEMI patients.

9:10am – 9:25am F **Vancomycin Dosing in Patients with Obesity** Athena D

Presenters: Kailey Spainhower

TITLE: Vancomycin Dosing in Patients with Obesity

AUTHORS: Kailey Spainhower, Brian Host, Taylor Riedel-Rogers

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Bayesian dosing of vancomycin has recently become more prevalent to calculate patients overall drug exposure. In July of 2020, Baptist Health Lexington (BHL) revised its vancomycin dosing protocol. This moved vancomycin dosing toward a Bayesian pharmacokinetic model, recommending a therapeutic area under the curve (AUC) between 400-600 mg/L*hr to be targeted in patients receiving therapy. As of 2021, American obesity has increased to 42.4% of American residents compared to 30.5% in 2017.1 It has been found that the AUC in obese patients is lower, and more variable, than non-obese counterparts after 24 hours of therapy.2 This mirrors other findings stating the time to steady state in obese patients is longer than five days, compared to four doses in non-obese patients.2 Weight-based loading doses have been used to achieve a therapeutic AUC, however, insufficient loading doses prolong the time to achieve a therapeutic AUC leading to worse patient outcomes. Achieving a therapeutic AUC within the first 24 hours of treatment has been shown to reduce treatment failure and 30-day mortality.3

METHODOLOGY: This IRB-approved, single-center, retrospective chart review involved patients admitted to BHL who received vancomycin therapy and had an actual body weight (ABW) of 100 kg or greater, with an ABW to ideal body weight (IBW) ratio of 140% or greater. Patient charts were reviewed, and data collected before (February 1, 2023 to April 30, 2023) and after (February 1, 2024 to April 30, 2024) re-education of appropriate vancomycin dosing was provided to BHL clinical pharmacy staff. Information provided involved appropriate utilization of current BHL vancomycin dosing in obesity protocol to achieve a target therapeutic AUC. The primary endpoint is defined as average AUC after loading dose between pre- and post-education cohorts.

RESULTS: A total of 70 patients were examined in the pre-education group. Among them, 39 (55.7%) were male, averaging 120.52 kg in weight and 40.16 kg/m2 in BMI. Pre-education loading doses averaged 18.9 mg/kg ± 2.1 mg/kg. Troughs were collected from 10 patients, yielding an average of 11.01 mg/dL ± 4.14 mg/dL, and used to calculate the AUC after the initial loading dose interval, resulting in an average of 407.2 mg/L*hr ± 136.31 mg/L*hr. For patients without collected trough levels, AUC was predicted using software based on individual parameters, resulting in an average predicted AUC after the loading dose of 397.13 mg/L*hr ± 109.82 mg/L*hr. Subsequently, 46 patients were analyzed in the post-education group. Among them, 22 (47.8%) were male, averaging 117 kg in weight and 40 kg/m2 in BMI. Post-education loading doses increased to 19.79 mg/kg ± 1.8 mg/kg. Troughs were collected from 19 patients, averaging 12.5 mg/dL ± 5.7 mg/dL. The average measured AUC increased to 413.2 mg/L*hr ± 126.4 mg/L*hr. Predicted AUC after loading dose was 504.3 mg/L*hr ± 48.8 mg/L*hr.

CONCLUSIONS:Pharmacist driven education on vancomycin dosing in obesity did not show statistically significant increase in AUC. However, statistically significant changes were observed for secondary objective nephrotoxicity incidence and the number of patients with a high severity antibiotic indication. Average trough values remained therapeutic throughout the entirety of the study. While the primary endpoint was not significant, the lack of nephrotoxic events with increased vancomycin doses provides opportunity for pharmacists to include more aggressive vancomycin loading doses without fear of nephrotoxicity.

9:10am – 9:25am T **Safety of Dipeptidyl Peptidase-4 Inhibitors Versus Mealtime Insulin in Hospitalized Patients** Athena B

Presenters: Andrew Yetka

TITLE: Safety of Dipeptidyl Peptidase-4 Inhibitors Versus Mealtime Insulin in Hospitalized Patients

AUTHORS: Andrew J. Yetka; Anna B. Bowles; Sarah F. Boyko; Stella Y. Ye

OBJECTIVE: Understand rates of hypoglycemia with use of DPP4i vs. mealtime insulin in hospitalized patients.

SELF ASSESSMENT QUESTION: Did use of a DPP4i result in a lower rate of hypoglycemia in patients evaluated in this study?

BACKGROUND: Insulin is the preferred agent for management of hyperglycemia in critical and non-critical hospitalized patients. Benefits of use include its predictability, ease of titration, and low cost. However, insulin administration requires increased monitoring, poses risk of hypoglycemia, and may result in potentially confusing discharge regimens. A recent guideline update from the Endocrine Society states that in select hospitalized, non-critical patients with mild hyperglycemia and type 2 diabetes (T2D), dipeptidyl peptidase-4 inhibitors (DPP4i) with correctional insulin or scheduled insulin can be initiated for glycemic control. DPP4is act by inhibiting degradation of incretins, including glucagon-like peptide 1, providing glucose dependent antihyperglycemic activity. Use of DPP4is in hospitalized patients has provided similar efficacy to insulin in studies and may reduce need for monitoring, risk of hypoglycemia, and the potential for complex regimens on discharge. This study was performed with the intent to provide additional evidence for use of a DPP4i for glycemic control in hospitalized non-critically ill patients by supplementing representation for a population with less optimal control of T2D prior to admission.

METHODOLOGY: This single-center retrospective cohort review took place at Grady Memorial Hospital (GMH), a large urban academic medical center in Atlanta, Georgia. Participants included 44 non-critically ill adults with T2D admitted between January 2022 and February 2023 who were initiated on a DPP4i or scheduled mealtime insulin for glycemic control. Point of care glucose results were evaluated for days two through five of use of the initiated agent in each patient included. The primary outcome was difference in rate of hypoglycemia (blood glucose (BG) less than 70 mg/dL). Secondary outcomes included: differences in rates of severe hypoglycemia (BG less than 50 mg/dL) and hyperglycemia (BG greater than 180 mg/dL), as well as differences in total daily dose of insulin and average daily number of injections.

RESULTS: Compared with mealtime insulin, use of a DPP4i resulted in a non-significantly lower rate of hypoglycemia, severe hypoglycemia, and hyperglycemia. Use of a DPP4i did demonstrate a significant reduction in daily insulin requirement and daily injections.

CONCLUSIONS: This study demonstrates that addition of a DPP4i instead of scheduled mealtime insulin to a patient’s glycemic control regimen could provide safer glycemic control and more endurable treatment for non-critically ill hospitalized patients. Additionally, this data supports use of these agents as opposed to mealtime insulin for glycemic control in admitted patients with poor glycemic control outside of the hospital. Limitations of this study include the relatively short glycemic period evaluated, small sample size, as well as lack of evaluation of feeding status.

9:10am – 9:25am D **Evaluating the Medication Use Process Utilizing PMR of Vaccines in Outpatient Clinics** Athena J

Presenters: Kylee Clay

TITLE: Evaluating the Medication Use Process Utilizing PMR of Vaccines in Outpatient Clinics

AUTHORS: Kylee Clay, Merideth H. Allen, Elizabeth Brooks, Perry Thompson

OBJECTIVE: Evaluate the efficiency and safety of current outpatient vaccine PMR workflow

SELF ASSESSMENT QUESTION: What methods can be utilized by a healthcare system to improve safety of vaccine administration?

BACKGROUND: At Central Alabama Veterans Health Care System (CAVHCS), all vaccines other than influenza and COVID-19 must undergo prospective medication review (PMR) by an inpatient pharmacist. A prior PMR study determined the shortest time interval of the medication use process was the time from order entry to pharmacist verification. This process has not previously been evaluated at CAVHCS. The purpose of this quality improvement project is to review the efficiency and safety of current outpatient vaccine PMR workflow in a non-profiled environment without bar code medication administration (BCMA).

METHODOLOGY: This retrospective quality improvement project involved chart reviews of Veterans having at least one of the following vaccines ordered in an outpatient clinic between January 1, 2023 and June 30, 2023: Shingrix, Prevnar 20, Pneumovax 23. Information Technology data extraction was utilized to collect Veteran data from the electronic health record, including the Veteran's name, Veteran's date of birth, clinic associated with vaccine order, vaccine ordered, date and time of administration, date and time of vaccine order signature, and date and time of vaccine order verification by pharmacist. The primary outcome was the percent of vaccines administered prior to order verification. Secondary outcomes included the percent of vaccines documented as given before order verification by a pharmacist which were clinically inappropriate, the percent of vaccines verified by pharmacy but never given, the mean time taken and standard deviation (SD) of vaccine order placement to order verification by a pharmacist, the mean time taken and SD of vaccine order placement to vaccine administration of vaccines appropriately following the PMR process, and the mean time and SD from vaccine administration to order verification by a pharmacist of vaccines not following the PMR process.

RESULTS: Of the 7,530 vaccine orders received, 2,824 (37%) vaccines were administered prior to verification. Of these, fifty (1.77%) were considered to be clinically inappropriate upon chart review. This includes three Shingrix, eleven Pneumovax23, and thirty-six Prevnar20 vaccines. The mean time taken from order placement to verification was 90 minutes (SD 578 minutes) and from order placement to administration when PMR followed appropriately was 2,857 minutes (SD 8,033 minutes). When given prior to verification, the mean time difference to administration was 54 minutes (SD 108 minutes). Upon evaluation of time taken by verifying site, it was determined that West Campus verified orders with a mean of 19 minutes (SD 126 minutes) and East Campus verified orders with a mean of 152 minutes (SD 775 minutes).

CONCLUSIONS: Upon completion of this review, it was determined that a little over a third of vaccines administered at CAVHCS did not appropriately follow verification procedure. It was determined that one Shingrix vaccine was given as a third dose, and the other forty-nine vaccines were likely given due to clinical reminders being triggered by non-specific diagnoses or out-of-date medication lists suggesting the patient was immunocompromised when they were not. These reminders will be reviewed with the Clinical Application Coordinators for accuracy. Education will be given to providers regarding the importance of ensuring the medication list is up-to-date and the diagnoses utilized are as specific as possible to reduce chances of clinical reminders being activated when unnecessary. Education to staff will also include the importance of evaluating the clinical reminders for appropriateness based on patient specific factors. Verification times were also found to vary greatly based on the facility verifying orders, with West Campus verifying vaccines on average eight times more efficiently. Different responsibilities between campuses that may impact workflow could be contributing factors.

The mean time for verification overall as well as by verification site was provided to the inpatient pharmacy supervisor to address workflow as needed.

9:10am – 9:25am Y **Extended Infusion Carboplatin for Hypersensitivity Reaction Prevention** Athena A

Presenters: Samantha Lightle

TITLE: Extended Infusion Carboplatin for Hypersensitivity Reaction Prevention

AUTHORS: Samantha Lightle, Amanda Ouzts, Allison Bass

OBJECTIVE: Describe the mechanism behind carboplatin hypersensitivity reactions. Explain the implementation of extended infusion carboplatin in patients recieving a lifetime cycle count of 6 or greater. Compare carboplatin hypersensitivity reaction rates before and after implementation. Identify the rate of compliance modifying carboplatin to be in 500 mL of normal saline given over 60 mintes.

SELF ASSESSMENT QUESTION: What are risk factors for developing a hypersensitvity reaction to carboplatin? Select all that appply. a) relapsed disease b) cumulative dose >1,000 mg c) BRCA 1/2 mutation d) lifetime cycle count >=7

BACKGROUND: Overall occurrence of hypersensitivity reactions with carboplatin can vary based on multiple patient factors, including lifetime cumulative doses and previous desensitization. A previous systematic review illustrated that the rate of carboplatin hypersensitivity reaction increases from 6.5% in cycle 6 to 27% in cycle 7 or more. At our institution, reactions have been observed with earlier cycles. Previous studies have shown an unclear benefit with premedication, but there is evidence to support changing to an extended infusion of carboplatin to prevent hypersensitivity reactions in patients receiving a higher number of cycle counts. Education was previously provided to our local gynecologic oncology providers about the use of extended infusion carboplatin in this patient population, but no formal protocol or change to an order set has been implemented. The objective of this project is to evaluate the rate of reaction in those treated with carboplatin with a special focus on those with a cumulative cycle count of 6 or greater and to implement a process for the conversion to extended infusion carboplatin in those receiving cycle 6 or greater.

METHODOLOGY: This is a single-center, retrospective analysis between June 2022 and December 2023. Patients in this study were 18 years or older and were treated with carboplatin through our institution’s gynecologic oncology practice. A chart review was completed on patients who have documented carboplatin doses dispensed and administered by our gynecologic oncology providers. Data collected from the electronic medical record included: patient demographics, lifetime carboplatin doses, documented reaction during carboplatin administration, type of reaction documented, cycle of carboplatin that resulted in hypersensitivity reaction, risk factors for carboplatin hypersensitivity, and if the patient had gone through carboplatin desensitization in the past. Interventions in the project include the addition of carboplatin 500 mL infused over 60 minutes as a product selection option upon order entry as well as implementing a cumulative carboplatin cycle tracker. Post-implementation data was collected from January 2024 to March 2024. Data was evaluated for rates of carboplatin reaction, lifetime cycle count with reaction, and the presence of risk factors for carboplatin hypersensitivity as well as the rate of appropriate conversion to extended infusion carboplatin.

RESULTS: The reaction rate associated with extended infusion carboplatin in those recieving cycle 6 or greater was lower than reaction rates reported in those with higher cycle counts without the use of extended infusion. Our institution saw a less than 5% reaction rate when utilizing extended infusion carboplatin in those with a lifetime cycle count of 6 or greater. Literature suggests that reaction rates without the use of extended infusion carboplatin can be as high as 6.5% at cycle 6 and 27% at cycle 7. The rate of accurate conversion to extended infusion carboplatin also increased after strategies were implemented to automate the conversion to extended infusion. Rate of conversion before implementation was 49.2%. After conversion, there was a rate of appropriate carboplatin conversion of 96.6%.

CONCLUSIONS: Implementing strategies to support the automatic conversion to extended infusion carboplatin

improved conversion rates at our institution. The rate of carboplatin hypersensitivity reactions remained low when patients were appropriately administered extended infusion carboplatin.

9:30am – 9:45am M **Assessment of a Hepatitis C Treatment Program in a Family Medicine Resident Clinic** Athena H

Presenters: Christopher Rogerrs

TITLE: Assessment of a Hepatitis C Treatment Program in a Family Medicine Resident Clinic
AUTHORS: Christopher Rogers, Morgan Rhodes, Lawrence Bean
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Hepatitis C (HCV) is a serious health condition with acute infection rates being approximately four times higher than a decade ago. Despite national goals aiming for an eighty percent viral clearance by 2030, many barriers to treatment exist. Delays in care occur due to insurance requiring specific specialty pharmacies and specialist prescribers for coverage of direct acting antivirals (DAAs). Limited data is published regarding HCV treatment in primary care. With the newly published American Association for the Study of Liver Diseases – Infectious Diseases Society of America simplified treatment algorithm and well-tolerated DAAs on the market, this study aims to determine the HCV cure rates, appropriateness of liver classification, specialty pharmacy utilization, and resident confidence in treating HCV in a family medicine resident clinic.
METHODOLOGY: This was a retrospective chart review of patients treated by physicians at the Prisma Health Family Medicine Center for HCV from June 2017 to December 2023. Adult patients who screened positive for Hepatitis C, defined by a positive HCV antibody and quantifiable viral load, who were treatment naive were eligible for inclusion in this study. The primary outcome of this study was an undetectable viral load at week twelve (SVR12) after completion of therapy with a DAA. Secondary outcomes included the specific DAA prescribed, the appropriateness of classification of liver disease, linkage to HCV care (defined by the time from diagnosis to the first fill date), time to test of cure (SVR12), and medical resident confidence in treating Hepatitis C. Descriptive statistics were used to analyze patient, clinical, and outcomes data. Logistic regression was used to assess the relationship between an undetectable viral response and selected patient and clinical factors.
RESULTS: TBD
CONCLUSIONS: TBD

9:30am – 9:45am N **Impact of Community Pharmacist Transitions of Care Post-Discharge Calls for High Risk Medications** Athena I

Presenters: Allyson Marsh

Title: Impact of Community Pharmacist Transitions of Care Post-Discharge Calls for High Risk Medications

Primary Investigator: Allyson Marsh

Co-Investigators: TaShawn Marshall, Hailey Kelly, Megan Boothby, Nicholas Gazda

Practice Site: Moses H. Cone Memorial Hospital

Background:

Transitions of care (TOC) involves the coordination and continuity of health care provided to patients as one transfers between various settings of care. Errors can occur at any transition, however the transition from inpatient to outpatient is prone to preventable medication-related problems. During this transition, anticoagulant medications carry high risk of serious adverse events due to lack of communication between health care providers, inadequate patient education, incomplete medication reconciliation, delayed follow-up, and absence of patient involvement in medication management. Growing evidence continues to strengthen the need to support more direct clinical services as patients transition from various health care sites to lower the risk of medication-related harm This study evaluates the impact of pharmacist TOC calls post-discharge on patient health outcomes.

Methods:

This single-center, prospective, IRB exempt, quality improvement analysis included patients 18 years or older recently discharged from Moses H. Cone Memorial Hospital who had received an anticoagulant or antiplatelet from the Moses Cone Transitions of Care Pharmacy at hospital discharge. Pharmacists from one of six Cone Health Outpatient Pharmacies call the patient within 30 days post-discharge to provide medication reconciliation, medication counseling, benefits investigation, copay assistance, and guidance to follow-up appointments.
The primary outcome was the number of clinical interventions completed by the outpatient pharmacists assessed by descriptive statistics. Secondary outcomes include the number of patients switched to a Cone Health outpatient pharmacy, 30-day readmission rate, emergency department visits, and thromboembolic events.

Results:

Between September 1, 2023 to December 31, 2023, 39 patients were included in the final analysis. Community pharmacist outreach post-discharge resulted in 111 clinical interventions with 7 (18%) patients switching to a Cone Health Community Pharmacy. In this cohort, there were a total of 4 (10.26%) 30-day readmissions and 1 (2.56%) emergency department visits. Of these visits, 2 were related to side effects of our target drugs.

Conclusion:

Completion of transitions of care calls by community pharmacists after hospital discharge resulted in increased occurrences of patient counseling and, by extension, increased patient education regarding high-risk medications.

9:30am – 9:45am R **Impact of Heart Rate Observation (HeRO) Scoring on Late-Onset Sepsis Detection and Management** Olympia 2

Presenters: Andrea Coleman

TITLE: Impact of Heart Rate Observation (HeRO) Scoring on Late-Onset Sepsis Detection and Management

AUTHORS: Andrea Coleman, Claire Pearson, Michael Saxon, Megan Freeman

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Detection of late-onset sepsis (LOS) in neonates can pose a challenge due to the signs and symptoms being less specific and pronounced compared to sepsis in adults. Preterm neonates are at an increased risk of complications from sepsis due to being underdeveloped and immunocompromised. Early exposure to antibiotics can disrupt the natural microbiome, potentially leading to long-term complications. The purpose of this evaluation is to improve antibiotic utilization, decrease inappropriate antibiotic exposure, and decrease unnecessary late-onset sepsis workups. This study will aim to compare previous sepsis workup strategies with newly implemented HeRO Scoring to assess detection and management of LOS.

METHODOLOGY: A retrospective chart review was performed, through electronic health records of patients within Northside Hospital Atlanta neonatal intensive care units. Patients with a birth weight less than 1500 grams along with cultures drawn to evaluate for LOS were included in this analysis. Each workup and positive culture was analyzed to see if it met CDC National Healthcare Safety Network (NHSN) surveillance definitions. This analysis establishes whether the infection is a true healthcare associated infection. The pre-HeRO implementation data collection period was July 2022 through December 2022. Data was analyzed for cultures collected, sepsis biomarkers, and the quantity of late-onset sepsis workups. Culture data met inclusion criteria if it was drawn beyond 72 hours from birth. Data was compared from July 2023 through December 2023 for similar patients, after the implementation of HeRO scoring.

RESULTS: Pre-HeRO Implementation - Of the 165 workups, 97 workups (58.8%) led to antibiotics being prescribed for an average treatment duration of 5.82 days. Low percentage of workups (15%) met NHSN criteria for true healthcare associated infections. A total of 72 workups were treated with antibiotics, even though they did not met NHSN criteria.

Post-HeRO Implementation - Of the 180 workups, 95 workups (52.8%) led to antibiotics being prescribed for an average treatment duration of 6.06 days. Of the patients that were treated with antibiotics, 40 had a HeRO increase greater than 2 compared to the last 24 hours, or an increase of greater than 1 compared to the preceding hour. Low percentage of workups (12.2%) met NHSN criteria for true healthcare associated infections. A total of 73 workups were treated with antibiotics, even though they did not met NHSN criteria.

CONCLUSIONS: Using HeRO scoring as an assessment tool could indicate when a physician needs to evaluate the neonate and determine the need for LOS workup along with medical management of symptoms. Since there is not a specific threshold of HeRO scoring that would indicate initiating antibiotic therapy, assessing trends of the neonate may help address if this is an acute change or something that appears to be chronic. Both pre- and post-HeRO implementation data showed high numbers of workups done and high percentages of workups that lead to antibiotics being prescribed. Finding better ways to assess HeRO scoring trends may be a method to reduce unnecessary antibiotic exposure in the neonatal intensive care population.

9:30am – 9:45am D **Evaluation and Advancement of the Pharmacy Medication History Program at a Large Community Hospital** Athena J

Presenters: Andrew Norton

TITLE: Evaluation and Advancement of the Pharmacy Medication History Program at a Large Community Hospital

AUTHORS: Andrew Norton, Megan Heath, Doug Carroll

OBJECTIVE: Evaluate and advance the medication history process at DCH Regional Medical Center.

SELF ASSESSMENT QUESTION:

BACKGROUND: Medication histories are a vital part of medication reconciliation and transitions of care within hospitals. Pharmacy technicians can be a resource to facilitate the completion of these medication histories that historically are completed by nursing personnel. Additionally, literature has demonstrated the role of these technicians in reducing medication errors when comparing their accuracy to nursing personnel. Despite these publications, the role of pharmacy technicians in the medication history process at this institution is limited due to the lack personnel available.

METHODOLOGY: A randomized, prospective chart review was conducted among patients who were admitted from the emergency department to an acute care unit from December 1st, 2023 to December 20th, 2023. Patients were included if they had a medication history completed at time of randomization. A total of 100 patients were to be included, with 50 patients receiving a medication history from each pharmacy and nursing personnel. The primary outcome is to evaluate the accuracy of medication histories completed by nurses versus those completed by pharmacy (defined by the number of accurate medications out of the entire list). Secondary outcomes to be evaluated include the time from admission to completion of the medication history, the type of error made, therapeutic drug class in which an error was made, and hospital length of stay (LOS).

RESULTS: For the primary outcome, the medication histories completed by pharmacy personnel had a total number of 616 medications, with an error rate was 12% (n=74). Compared to a total number of 600 medications in the nursing personnel group, with an error rate of 36% (n=213). Secondary outcomes included a time to completion of 12.1 and 4.5 hours and LOS 4.85 and 5.09 days in the pharmacy and nursing groups, respectively. The majority of errors identified were missing medications (57%, 41%) and over-the-counter medications (49%, 32%) in the pharmacy and nursing groups, respectively.

CONCLUSIONS: The use of pharmacy technicians to complete medication histories should be further utilized to decrease the incidence of medication errors. Since the initiation of this study, the staffing model for these pharmacy technicians has changed to allow for quicker completion of medication histories after admission.

9:30am – 9:45am M **Utility of Routine Point of Care Blood Glucose Tests in a Primary Care Clinic** Athena G

Presenters: Omar Mouna

TITLE: Utility of Routine Point of Care Blood Glucose Tests in a Primary Care Clinic

AUTHORS: Omar Mouna, Kate O'Connor

OBJECTIVE: Determine the frequency in which clinically meaningful action is taken after utilization of routine point-of-care blood glucose tests in a primary care clinic.

SELF ASSESSMENT QUESTION: Does the utilization of routine point-of-care blood glucose tests in a primary care clinic lead to clinically meaningful action for all patients with an abnormal blood glucose level?

BACKGROUND: Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels, which significantly elevates the risk of other diseases. One tool that has drastically changed the management of diabetes is point-of-care (POC) blood glucose (BG) monitoring. POC BG monitors provide a snapshot of information and allow patients to better manage their diabetes. The American Diabetes Association (ADA) defines hypoglycemia as a BG level below 70 mg/dL and hyperglycemia as greater than 130 mg/dL while fasting or greater than 180 mg/dL post-prandially for patients with a diagnosis of diabetes. BG readings above 400 mg/dL should prompt consideration of treatment for patients with type 2 diabetes and levels above 250 mg/dL for type 1 diabetes. At an internal medicine clinic, every patient with a diagnosis of diabetes receives a routine POC BG test upon nurse intake, which is not a recommended practice. POC testing, provider interpretation of results, and subsequent action can lead to increased appointment duration and workload of nursing, pharmacy, and laboratory staff. The purpose of this study is to determine the frequency in which clinically meaningful action was taken in response to routine POC BG test results.

METHODOLOGY: This single-center, IRB-approved, retrospective medical record review, conducted at a hospital-based internal medicine clinic, included adult patients 18 years and older with an active diagnosis of diabetes, who underwent routine POC BG tests between July 1, 2022, and June 30, 2023. Patients were excluded if they received a POC BG test ordered by a physician outside of the nurse intake process. Due to an initial data hit of 1,657 patient encounters with a POC BG test result available during the time frame, data was collected from every 8th unique patient encounter from a Cerner Discern Analytics 2.0 generated list until 120 patients met inclusion criteria. The primary outcome assessed was frequency in which clinically meaningful action was taken in response to a routine POC BG test. Clinically meaningful action included administration of glucose-altering agents, intravenous fluids, or admission to emergency department/inpatient services. Appropriateness of clinical intervention was assessed as a secondary outcome. The following data were collected through chart review: demographics, POC BG readings, symptoms, hemoglobin A1c readings, emergency department visit/hospital admission within 24 hours, lengths of stay, in-clinic treatment details, and prescription changes.

RESULTS: Sixty-nine (58%) patients were female with a median age and weight of 59 years (50-66.5) and 88 kg (79-104), respectively. Median A1c was 6.8% (6.1-8.9) while median initial POC BG reading in clinic was 152 mg/dL (119-234). Eight (6.7%) patients received an initial POC BG result greater than 400 mg/dL. Three (2.5%) patients received an initial POC BG result of less than 70 mg/dL. The remaining 109 (90.7%) patients received POC BG results between 71-399 mg/dL. The primary composite outcome of frequency in which clinically meaningful action was taken after results of routine POC BG test was encountered by 1 (9.09%) patient of the 11 with abnormal glucose levels. Appropriate clinical interventions were utilized for 110 (91.7%) patients while 10 (8.3%) patients did not receive appropriate interventions. Of the 11 patients who had abnormal POC BG results, 8 (72.7%) experienced hyperglycemic or hypoglycemic symptoms in clinic.

CONCLUSIONS: Interpretation of POC BG test results in an internal medicine clinic resulted in a small amount of clinically meaningful action in-clinic. While most patients did not require evidence-based intervention, of the 11

patients who received abnormal POC BG test results, only 1 patient received intervention in clinic. Future directions for this research include determining which patients qualify for POC BG testing upon nurse intake and developing criteria for responding to abnormal BG results in clinic.

9:30am – 9:45am C **Incidence of Hemolysis with Systemic Bivalirudin with Percutaneous Ventricular Assist Device Support** Parthenon 2

Presenters: Emily Schaefer

TITLE: Incidence of Hemolysis with Systemic Bivalirudin with Percutaneous Ventricular Assist Device Support

AUTHORS: Emily Schaefer, Zachary Klick, Katherine Beach, Monty Yoder, Nevena Mihalovich

OBJECTIVE: To assess the incidence of hemolysis when systemic bivalirudin is used during percutaneous ventricular assist device (PVAD) support.

SELF ASSESSMENT QUESTION: True or False? In our study, systemic bivalirudin use showed increased incidence of hemolysis compared to therapeutic and prophylactic heparin.

BACKGROUND: A percutaneous ventricular assist device (PVAD) is used in the management of patients with cardiogenic shock. To prevent device malfunction, a continuous purge solution, either heparin-based, bicarbonate-based, or dextrose-based, is required. Since many patients have contraindications to receiving heparin, alternative non-heparin anticoagulants in the purge solution have been evaluated to avoid exposure, including bivalirudin. Unfortunately, evidence of device malfunction occurred when bivalirudin was used in purge solution. The impact on device function by systemic bivalirudin exposure is unknown, but similar rates of adverse events have been observed compared to published results with heparin-based strategies.

METHODOLOGY: A single-center, retrospective, cohort study that compared surrogate markers for hemolysis in the presence or absence of systemic bivalirudin. Patients were included if they received PVAD support with a bicarbonate-based (BBPS), heparin-based (HBPS), or dextrose-based purge solution (DBPS) between January 1, 2021 and December 31, 2023. Patient instances were compared, with an instance being defined as a period of time with or without concomitant use of systemic bivalirudin. Patients or instances were excluded if there was unavailable treatment or outcome data, use of systemic anticoagulation other than bivalirudin or unfractionated heparin, BBPS use alone if preceded by systemic bivalirudin, PVAD indication for right ventricular support, and concomitant extracorporeal membrane oxygenation. The primary outcome was the incidence of hemolysis based on laboratory data. Secondary outcomes included individual hemolysis laboratory value trends, patient status post-PVAD removal, and incidence of new stroke.

The analytical plan included the use of descriptive statistics to summarize continuous data through means or medians. Inferential statistics facilitated comparisons using T-tests for continuous endpoints and the Chi-squared test for categorical endpoints. Multi-level hierarchial model analysis of laboratory value trends was used to account for repeated measure of the same individual overtime.

RESULTS: 126 instances, attributed to 79 patients, were included in the IRB-approved study. 88 of these instances received BBPS, 37 received HBPS, and 1 received DBPS. Use of only one combination of purge solution and systemic anticoagulant throughout PVAD support was used in 45 (57%) of patients. Bivalirudin was used during 12 instances of BBPS and 1 instance of HBPS. The median duration of PVAD support was 161 hours (IQR 96,243). Laboratory confirmed hemolysis occurred in 45 (44.1%) instances and 12 (37.5%) of these instances occurred when a combination of BBPS and no anticoagulant was received.

CONCLUSIONS: Comparable incidence of hemolysis occurred with and without systemic bivalirudin.

9:30am – 9:45am R **Evaluation of Hypoglycemia with Insulin Dosing for the Treatment of Hyperkalemia** Olympia 1

Presenters: Haley Bond

TITLE: Evaluation of Hypoglycemia with Insulin Dosing for the Treatment of Hyperkalemia

AUTHORS: Haley Bond, Kerry Ward, Cristy Davenport, Kyle Starling, Hayley Harrod

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Acute management of hyperkalemia frequently includes calcium to stabilize the cardiac membrane and agents such as insulin and albuterol to shift potassium into the intracellular space. Although relatively safe, insulin is associated with a risk of hypoglycemia especially in patients with renal dysfunction. This study compared the incidence of hypoglycemia with weight-based dosing versus ten units of regular intravenous insulin for the treatment of hyperkalemia in patients in the emergency department or admitted to the hospital.

METHODOLOGY: The institutional review board approved this single center, retrospective cohort study. Medical records were abstracted for adult patients with a hospital admission between May 1, 2023, through October 31, 2023, that experienced an episode of hyperkalemia (a serum potassium level greater than 5 mmol/L) who received a one-time dose of regular intravenous insulin. Patients who received more than one dose of intravenous insulin within twenty-four hours of initial insulin administration for hyperkalemia were excluded. The primary outcome was the incidence of hypoglycemia within six hours of insulin administration, defined as blood glucose ≤70 mg/dL. Secondary endpoints included the incidence of severe hypoglycemia (a blood glucose value ≤50 mg/dL) and the incidence of hypoglycemia in patients with renal dysfunction within six hours of insulin administration. It was determined that a sample size of 438 patients would be needed using a power of 80% and a two-sided alpha level of 5%.

RESULTS: A total of 237 patients were included in the study. Median age was 62 years old. 56% of patients were male. 65% of patients were classified as having renal dysfunction. The incidence of hypoglycemia did not differ significantly between individuals receiving weight-based insulin (29 of 141 [20.6%]) and those receiving fixed-dose insulin (16 of 96 [16.7%]); p = 0.452. A subgroup analysis of the primary outcome was performed evaluating hypoglycemia in patients with renal dysfunction. A statistically significant subgroup difference was not detected.

CONCLUSIONS: There was no difference in hypoglycemic events among patients who received weight-based versus fixed dose insulin for the treatment of hyperkalemia.

9:30am – 9:45am R **Outcomes Associated with Sodium Bicarbonate Administration During In-Hospital Cardiac Arrest** Parthenon 1

Presenters: Ansley Carroll

TITLE: Outcomes Associated with Sodium Bicarbonate Administration During In-Hospital Cardiac Arrest

AUTHORS: Ansley Carroll, Stephen Turner, Liz Wright, Hong Duong, Mark Knower

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Purpose: The use of sodium bicarbonate (SB) during cardiac arrest remains an on-going clinical debate. The most recent ACLS guidelines do not routinely recommend the use of SB in cardiac arrest. However, it continues to be utilized in clinical practice for its potential benefit in improving catecholamine efficacy by blood alkalization. Prior studies show conflicting results and the majority were evaluating SB use in the setting of out-of-hospital cardiac arrests rather than in-hospital cardiac arrests (IHCA). The purpose of this study is to assess clinical outcomes associated with SB administration during IHCA among patients stratified by pre-arrest acid-base status.

METHODOLOGY: Methods: A retrospective cohort study of IHCA events documented in medical records from January 2020 – January 2023 was conducted. Patients were identified by code blue records and eligible for inclusion if sodium bicarbonate was administered during the documented IHCA event. Patients were excluded if they were less than 18 years of age, experienced a noncardiac event, were on a sodium bicarbonate infusion prior to the arrest, or had a code blue order placed in the emergency department since pre-arrest data would not be available in these situations. As described in previous literature, a study sample of 244 patients was needed to reach a power of 80%. Patients were grouped by pre-arrest acid-base status which was assessed by documented arterial blood gas (ABG) or serum bicarbonate from routine metabolic panel collections if ABG was not available. Patients were considered acidotic if serum pH was less than 7.35 or serum bicarbonate was less than 21 mmol/L. The primary outcome was the return of spontaneous circulation (ROSC). The secondary outcomes included the post-arrest acid-base status, ICU length of stay, total length of stay, and survival to hospital discharge.

RESULTS: Results: A total of 1,282 cardiac arrest events over a 3-year period were evaluated. Of the 1,282 events, 1,031 were excluded primarily because code blue orders were placed in the emergency department (n = 760 [74%]). Two hundred fifty-two cardiac arrest events were included in this study, of which 88 (35%) were in an acidotic state prior to the event. There was no significant difference for the achievement of ROSC between the acidotic group and non-acidotic group (41 events [47%] and 87 events [53%], respectively; p-value = 0.35). The mean amount of sodium bicarbonate administered was 1.36 ± 1.02 mEq/kg in the acidotic group and 1.18 ± 0.71 mEq/kg in the non-acidotic group (95% CI: -0.03 to 0.40; p value = 0.08). For secondary analysis, the survival to hospital discharge rate was low in both groups (4 of the 41 patients in the acidotic group [10%] and 18 of the 87 patients in the non-acidotic group [21%]; p-value = 0.14).

CONCLUSIONS: Conclusion: Sodium bicarbonate administration during cardiac arrest did not exhibit a significant difference in the incidence of ROSC regardless of pre-arrest acid-base status. However, it is notable that adequate weight-based dosing of sodium bicarbonate was used in this study. Further studies are needed to evaluate if potential subgroups that may benefit from sodium bicarbonate administration during IHCA exist.

9:30am – 9:45am F **A retrospective review of long-acting lipoglycopeptide utilization at a VA tertiary teaching medical center** Athena C

Presenters: Megan Maree

TITLE: A retrospective review of long-acting lipoglycopeptide utilization at a VA tertiary teaching medical center

AUTHORS: Megan B. Maree, Bonnie Chan, Tiffany Goolsby, Nora Oliver

OBJECTIVE: Evaluate the utilization of long-acting lipoglycopeptides in the outpatient and inpatient settings at the Atlanta VA Medical Center.

SELF ASSESSMENT QUESTION: True or False? The use of long-acting lipoglycopeptides was not found to be effective in lower extremity OM.

BACKGROUND: Dalbavancin and oritavancin are long-acting lipoglycopeptides (LA-LGPs) approved by the Food and Drug Administration (FDA) for acute skin and soft tissue infections (ASSTIs). With their long-acting pharmacokinetics and broad activity against gram-positive bacteria, LA-LGPs are ideal options for patients with serious infections, such as bone, joint, and bloodstream, who (1) require prolonged antimicrobial therapy, (2) are not candidates for long-term intravascular catheter access, (3) prefer to avoid hospital admission, and/or (4) need early discharge.

METHODOLOGY: A retrospective chart review was conducted on patients ages older than 18 with a medication order of dalbavancin or oritavancin from September 2020- August 2023 at the Atlanta VA Medical Center. Patients were excluded if the patient did not have an active infection or a LA-LGP was ordered but not administered. Pertinent demographic, clinical, and microbiological data were collected from the patient’s medical record.

RESULTS: Resolution of infection in 3 months with LA-LGPs was found to be 76% (35/46) effective in lower extremity osteomyelitis and 74% (72/98) effective for all indications. The mean total length of stay (inpatient) after LA-LGP infusion was 3.9 days. The most common adverse events were nausea and vomiting, which occurred at a rate of 6.1% (6/98).

CONCLUSIONS: The utilization of LA-LGPs showed to be effective in infection resolution in a 3-month period in majority of patients. Specifically, lower extremity osteomyelitis, a non-FDA approved use, showed promising results in resolution of infection. The use of LA-LGPs can be beneficial in shortening hospital length of stay and prevention of hospitalizations with minimal adverse events. This can possibly lead to decreased health care cost and hospital acquired infections. In all, the use of LA-LGPs has significant potential use in other serious infections other than ASSTIs with a variety of benefits from the patient and healthcare perspective.

9:30am – 9:45am F **INPATIENT PHARMACIST ROLE IN DE-LABELING BETA-LACTAM ALLERGIES** Athena D

Presenters: Holley Maness

TITLE: INPATIENT PHARMACIST ROLE IN DE-LABELING BETA-LACTAM ALLERGIES

AUTHORS: Holley Maness, Emily Bilas, Melissa Padgett, Lisa Scott

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify potential negative outcomes of inappropriately reporting a beta-lactam allergy

SELF ASSESSMENT QUESTION: Which of the following are potential negative outcomes of inappropriately reporting a beta-lactam allergy?

BACKGROUND: Penicillin allergies are the most common drug allergy, but approximately 90% of these cases are reactions that are mislabeled or inappropriately classified as a drug allergy. Incorrectly reported allergies are associated with increased antimicrobial resistance, length of stay, and drug costs. With antimicrobial resistance being an ongoing concern, appropriate utilization of antibiotics is more important than ever. Interviewing a patient with a reported beta-lactam allergy presents an opportunity for inpatient pharmacists to stratify risk of a reaction and recommend alternative treatment if the allergy can be de-labeled or classified as low risk.

METHODOLOGY: This was a single-center, prospective study conducted at a 515-bed academic hospital. A daily allergy report was used to identify patients admitted in the previous 24 hours with a reported beta-lactam allergy. Patients were excluded if they were unable or unwilling to complete an allergy assessment. Study patients were interviewed by a pharmacist or pharmacy student using an allergy assessment tool to stratify the reaction as low, moderate, or high risk. The primary endpoint was the incidence of mislabeled beta-lactam allergies. Secondary endpoints included time spent on patient interviews and the potential for antibiotic therapy change. Potential for therapy change was defined as a patient on an antibiotic at the time of interview and being treated for a condition where a beta-lactam could be used.

RESULTS: Interviews were conducted in 146 patients from October 2023 to January 2024. Cohort 1 was comprised of patients with low or unknown allergies (N=43) and Cohort 2 included patients with moderate or high risk allergies prior to the interview (N=103). Demographic characteristics were collected for age, gender, and whether or not the patient was on an antibiotic at the time of interview; all were similar between the two cohorts. It was determined that 86% of Cohort 1 and 53% of Cohort 2 had mislabeled allergies. For patients with mislabeled allergies, they were either de-labeled (12% and 8%), de-escalated (60% and 34%), or escalated (14% and 11%), in Cohort 1 and Cohort 2 respectively. The average time for patient interviews was the same between cohorts at 2.8 minutes. Lastly, it was found that 26% of Cohort 1 and 24% of Cohort 2 had a potential for antibiotic therapy change after the patient interview.

CONCLUSIONS: Although this study was not powered to detect a statistical difference between cohorts, it did provide insight to potential benefits of future studies. This study suggests that all reported beta-lactam allergies with the potential to change antimicrobial therapy to a beta-lactam would benefit from pharmacy clarification of allergy details.

9:30am – 9:45am T **Risk Factors for Inpatient Hypoglycemia During Glucose-lowering Therapies** Athena B

Presenters: Diana Dang

TITLE: Risk Factors for Inpatient Hypoglycemia During Glucose-lowering Therapies

AUTHORS: Diana Dang, Rebecka Hazelwood, Nisha Patel

OBJECTIVE: Identify risk factors for inpatient hypoglycemia during glucose-lowering therapy in non-critically ill patients

SELF ASSESSMENT QUESTION: Based on the results of this study, which of the following is not an identified risk factor for inpatient hypoglycemia at WKRMC?

BACKGROUND: Hypoglycemia, defined by the American Diabetes Association (ADA) as a blood glucose level less than 70 mg/dL, is a common complication in diabetes management. In the hospital, hypoglycemic events may be related to patient comorbidities, prescribing and administration of glucose-lowering agents, and changes in nutritional intake. These events can extend hospital lengths of stay and increase mortality rates. The ADA has outlined guidelines advocating for the implementation of hypoglycemia prevention protocols to help guide inpatient glucose management. Currently, Wellstar Kennestone Regional Medical Center (WKRMC) does not have a prevention protocol in place. The aim of this study is to establish foundational data regarding the most prominent risk factors associated with hypoglycemia in non-critically ill patients and to assist in the development of a prevention strategy.

METHODOLOGY: This was an observational, retrospective chart review of patients hospitalized at WKRMC between July 1, 2022 to December 31, 2022. Adult patients receiving a glucose-lowering agent on the general medical ward who experienced ≥1 hypoglycemic event within 24 hours following administration were included. Exclusion criteria consisted of hypoglycemia upon admission, hypoglycemic events due to diabetic ketoacidosis or hyperosmolar syndrome, and vulnerable subjects. The primary outcome was to identify risk factors for inpatient hypoglycemia during glucose-lowering therapy. The secondary outcome was to develop a pharmacy-focused hypoglycemia prevention protocol. Descriptive statistics were performed to report outcomes.

RESULTS: A total of 255 patients were screened and 152 patients were included in this study. The majority of patients were Caucasian (52.6%), male (55.9%), and had a mean (SD) age of 68.2 (13.9). The mean (SD) body mass index was 27.6 (7.5). About 90% of patients had a history of diabetes. The most common comorbidities included renal disease (49.3%), heart failure (37.5%), malignancy (27.0%), and acute kidney injury (24.3%).

Majority of patients were on basal insulin (71.1%), prandial insulin (38.8%), and average sliding scale insulin (40.8%). There were 52 (34.2%) patients with changes in glucose-lowering agent, dosing, or schedule within 24 hours prior to the hypoglycemic event. The most common change was the initiation or addition of glucose-lowering agent. There were 97 patients who received other pertinent medications within 24 hours of the event. Of those patients, 18 had documented changes in medication dosing or schedule. Majority of changes were to beta blockers, steroids, and antibiotics.

Most patients had adequate oral intake. There were 25 (16.4%) patients with documented changes in nutritional intake within 24 hours prior to the event. Most changes involved decreases in nutritional intake. All patients had a

documented glucose value preceding the hypoglycemic event. No significant adverse events occurred within the following 24 hours. Hospital readmission due to a diabetes-related complication within the following 30 days occurred in 3 (2.0%) patients.

CONCLUSIONS: The major risk factors for hypoglycemic events on the general ward identified in this study included history of diabetes, renal disease, as well as patients on basal insulin, prandial insulin, and beta blockers. Most changes related to glucose-lowering therapy involved the initiation or addition of agent, reflecting the potential for overly aggressive hyperglycemia therapy. Limitations of this study include the retrospective, observation design, and the lack of documentation pertaining to nutritional intake. While most patients had oral diets, diet adequacy and changes in intake of most patients could not be assessed. Thus, yielding the possibility of more nutritional intake changes than was observed. More consistent documentation should be encouraged. The risk factors identified in this study will be used to develop a hypoglycemia EPIC report specific to WKRMC to help rounding pharmacists identify high-risk patients. Future studies may assess the value and impact of the hypoglycemia EPIC report by comparing hypoglycemic events pre- and post-usage.

9:30am – 9:45am Y **Evaluating Efficacy and Safety of Zoledronic Acid versus Pamidronate for Hypercalcemia of Malignancy** Athena A

Presenters: Dheer Bole

TITLE: Evaluating Efficacy and Safety of Zoledronic Acid versus Pamidronate for Hypercalcemia of Malignancy

AUTHORS: Dheer Bole, Tushar Patel, Kelly Carter, Aayush Patel

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Hypercalcemia of malignancy is a serious oncological complication associated with all types of tumors and hematological malignancies with significant symptom burden and high rates of mortality. Current treatment guidelines recommend fluids, calcitonin, and intravenous bisphosphonates for management of elevated serum calcium. The mainstay treatment, bisphosphonates, are effective in reducing serum calcium levels but can be harmful to the kidneys leading to elevation in serum creatinine and acute renal failure. The two bisphosphonates with FDA approval for hypercalcemia of malignancy, zoledronic acid and pamidronate, differ in potency, safety, and administration and selection is based on patient specific factors. This study's purpose is to compare and evaluate zoledronic acid and pamidronate on the efficacy in reducing serum calcium levels and safety through monitoring renal function in patients with hypercalcemia of malignancy.

METHODOLOGY: An IRB approved retrospective chart review was conducted of adult patients admitted to Piedmont Columbus Regional Midtown and Piedmont Atlanta Hospital from November 1st, 2017 to November 1st, 2023 who received either zoledronic acid or pamidronate for confirmed hypercalcemia of malignancy. Patients were excluded if they received bisphosphonate treatment within 30 days. or had lack of documentation or labs. The primary outcome assessed the reduction in serum calcium by day 10 while the secondary outcomes evaluated elevation of serum creatinine, time to normalization of calcium levels, and need for additional bisphosphonate doses due to relapse.

RESULTS: A total of 81 patients were included in this study with 49 included in the zoledronic acid group and 32 in pamidronate. For the primary outcome, assessing normalization to corrected serum calcium, 44 (90%) patients met the criteria in zoledronic acid while only 24 (75%) patients in pamidronate. Secondary outcomes showcasing safety found more risk with zoledronic acid where it caused at least a 25% increase of serum creatinine from administration in 19 (38.8%) patients in zoledronic acid compared to 5 (15.6%) in pamidronate.

CONCLUSIONS: In conclusion, zoledronic acid was shown to be more efficacious in this study, reducing calcium levels at a faster rate, but there are concerns with safety. The zoledronic acid group was associated with more hypocalcemia and increases in serum creatinine. Therefore, the choice of IV bisphosphonate for the treatment of hypercalcemia of malignancy is dependent on patient specific factors.

9:50am – 10:05am M **Evaluation of a Professional Continuous Glucose Monitoring Program at a Family Medicine Clinic** Athena H

Presenters: Autumn Clemins

TITLE: Evaluation of a Professional Continuous Glucose Monitoring Program at a Family Medicine Clinic

AUTHORS: Autumn Clemins, Lewandowski Bryson, Morgan Rhodes, Lawrence Bean

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Approximately 11.3% of the population in the United States has diabetes. If not managed appropriately, diabetes can lead to cardiovascular disease, nephropathy, neuropathy, and other complications. It is vital to manage and treat diabetes early on to prevent these complications. Continuous glucose monitor (CGM) systems help manage diabetes and provide more efficient and less demanding monitoring. This diabetes technology allows patients to see glucose levels in real time and gives providers more data to assess, leading to individualized treatment plans and achievement of glycemic control goals. There is little evidence on the effectiveness of an interprofessional experience on educating family medicine residents on how to utilize and interpret CGMs. An interdisciplinary CGM-focused clinic that consists of CGM placement and interpretation visits was started in February 2022 by pharmacists with medical residents integrated into it. The study aims to assess the clinical and educational impact of a CGM service on patients and learners.

METHODOLOGY: This retrospective, single-center cohort study evaluated adult patients diagnosed with diabetes who received a professional CGM between February 2022 and October 2023 at the Prisma Health Family Medicine Center (FMC) in Columbia, South Carolina. The primary educational outcome of resident knowledge and confidence in utilizing CGMs was determined by assessing the results obtained from voluntary, anonymous pre and post surveys given to the family medicine residents. The secondary clinical outcomes were to assess diabetes control (measured by the change in A1c from baseline to post-CGM clinic) and CGM data (time in range, time above range, time below range, glucose management indicator, and glucose variability). To further assess the clinical impact, adherence to the American Diabetes Association (ADA) guidelines before and after attendance in CGM clinic was assessed by ensuring the patient is optimized on guideline directed diabetes therapy based on comorbidities and preventive therapies (statin and ACEi/ARB use). Patients were also reviewed for diabetes-related routine exams (foot, eye, and nephropathy) and recommended vaccinations. Patient demographics and insurance types were also collected. Data was analyzed via descriptive statistics.

RESULTS: TBD

CONCLUSIONS: TBD

9:50am – 10:05am M **Factors influencing prescribing patterns of DPP-IV inhibitors** Athena G

Presenters: Niaima Geresu

TITLE: Factors influencing prescribing patterns of DPP-IV inhibitors

AUTHORS: Niaima Geresu; Alexandria May; Mary Katherine Cheeley

OBJECTIVE: Describe potential factors that can influence prescribing of diabetic agents.

SELF ASSESSMENT QUESTION: How can pharmacists aid in prescribing appropriate guideline directed therapy

BACKGROUND: Sodium-glucose cotransporter-2 inhibitors (SGLT2i) and glucagon-like peptide-1 receptor agonists (GLP-1 RA) have vastly improved the treatment of diabetes since the first drug in each class was FDA approved in 2013 and 2005, respectively. Recently, additional FDA approved indications for heart failure and secondary atherosclerotic cardiovascular disease (ASCVD) prevention have further increased their popularity and incidence of prescribing. Historically, these medications are more frequently prescribed by specialties such as cardiology and endocrinology, while other specialties lack in comparison. This may be due to less familiarity with the medications, leading to hesitancy in their utilization even in patients who may benefit from therapy. Evaluating prescribing patterns of DPP-IV inhibitors in patients with type 2 diabetes mellitus will provide insight on factors that influence the prescribing of these medications. The goal of this study is to ultimately improve patient outcomes and potentially reduce hospital readmissions when such therapies are started appropriately.

METHODOLOGY: This study was a retrospective chart review of adult patients who were at least 18 years old, newly prescribed a DPP-IV inhibitor from a Grady Health System neighborhood clinic from July 1st, 2022 - June 30th, 2023. Protected populations were excluded from this study. The primary outcome of this study were the factors influencing prescribing patterns of DPP-IV inhibitors. Secondary outcomes of this study include prescribing patterns by specialty, incidence of adverse effects, and medication persistence.

RESULTS: Fifty patients were included in this study, with 62% of the patients identifying as female and 88% of the patients identifying as Black. The average weight for the participants was 100.35 kg and an average BMI of 31.1. Sixty percent of patients included in this study were uninsured. Participants had an average A1c of 9.1% with a majority of subjects (92%) with no history of ASCVD.

CONCLUSIONS: Authors found that DPP-IV inhibitors were initiated in patients that potentially could have benefited from an alternative agent such as GLP-1 RA or SLGT2i. However, there are a variety of external factors that could have influenced provider’s decision in initiating DPP-IVs that may have not been captured in this study.

9:50am – 10:05am C **Assessing Readmission in Heart Failure Patients by Adherence to Guideline-Directed Medical Therapy** Parthenon 2

Presenters: Tia Givens-Hines

TITLE: Assessing Readmission in Heart Failure Patients by Adherence to Guideline-Directed Medical Therapy

AUTHORS: Tia Givens-Hines, Ketreuna Bingham, Krista Riche, Jamie Wagner

OBJECTIVE: Determine if HF patients who are discharged on guideline-directed therapy have fewer readmissions.

SELF ASSESSMENT QUESTION: What was the readmission rate for heart failure patients at St. Dominic Memorial Hospital?

BACKGROUND: Patients are frequently readmitted for heart failure exacerbation. Medication optimization can play a significant role in reducing readmissions due to exacerbation. The Hospital Readmission Reduction Program (HRRP) is a Medicare value-based program created to reduce payments for hospitals with excessive readmission for various diagnoses including heart failure. The Centers for Medicare and Medicaid Services (CMS) defines readmission as any unplanned admission, regardless of primary diagnosis for readmission, that falls within thirty days of hospital discharge. The purpose of this study was to assess the readmission rates in patients with a pre-admission diagnosis for heart failure, stratify whether the patients who were discharged on optimized medication therapy were less likely to be readmitted, and investigate if hospital physicians were discharging patients on optimized medication therapy according to the 2022 AHA/ACC/HFSA Guidelines for the Management of Heart Failure.

METHODOLOGY: The retrospective case-control study includes adult patients admitted to Saint Dominic Jackson-Memorial Hospital between July 1, 2022, and June 30, 2023, with a heart failure diagnosis. Patients with a diagnosis of preserved or normal ejection fraction, patients greater than 90 years old, the presence of any ventricular assistance device, recent (less than one year) heart transplant, discharged to hospice or skilled nursing facility placement, and patients with end-stage renal disease (ESRD) were excluded. The primary outcome was to evaluate the 30-day hospital readmission rates in patients with heart failure, and the secondary outcomes included identifying medication appropriateness at discharge based on guidelines and assessing treatment in African American patients compared to the total population.

RESULTS: One hundred patients were included in the IRB-approved study. The median age of participation was 66 [IQR 32-88] years; 65 (65%) were male, and 60 (60%) were African American. Many patients (43%) had an ejection fraction between 20 and 29%. The 30-day hospital readmission rate was 21%; 17% of which were due to a non-heart failure reason and 4% due to a heart failure exacerbation. The comparison of Guideline-Directed Medical Therapy (GDMT) and 30-day hospital readmission proved statistically significant ($p = 0.0099$), as 21 patients not discharged on GDMT were readmitted. In the African American population, the readmission rate was 25%; owing 22% to readmission due to non-heart failure reasons and 3% to readmission due to heart failure. When compared by discharge medications and race, African Americans proved to not be disproportionally managed.

CONCLUSIONS: We observed a 21-patient readmission for every 100 patients discharged from the institution. Patients who were discharged on non-GDMT were significantly more likely to be readmitted. The African American population proved to not be disproportionally managed when compared to the Caucasian race.

9:50am – 10:05am R **EFFICACY OF SINGLE-SYRINGE ADENOSINE ADMINISTRATION FOR TERMINATION OF SVT IN THE ED** Parthenon 1

Presenters: Colin Busbee

TITLE: EFFICACY OF SINGLE-SYRINGE ADENOSINE ADMINISTRATION FOR TERMINATION OF SVT IN THE ED

AUTHORS: Colin Busbee, Taylor Cason, Regan Porter, Aubrie Hammond

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Adenosine is a first-line agent in the management of hemodynamically stable supraventricular tachycardia (SVT). The pharmacokinetic properties of adenosine necessitate rapid administration as it is quickly cleared from circulation. Historically, adenosine has been administered via a double-syringe technique (DST) where it is given via a two-way stopcock in one syringe followed immediately by a 20 mL normal saline flush. The single-syringe technique (SST) is an alternative administration method that has been proposed in recent literature in which adenosine is diluted in a single syringe with 20 mL of normal saline allowing for easier administration. The purpose of this study is to evaluate the efficacy of SST versus DST adenosine administration for termination of SVT in the emergency department (ED).

METHODOLOGY: A single-center, retrospective chart review was conducted from November 2021 to October 2023. The pre-intervention arm included patients who received adenosine via the DST while the post-intervention arm included patients who received adenosine via the SST. Inclusion criteria consisted of adult patients who received adenosine in the ED with documented involvement of the Emergency Medicine (EM) clinical pharmacist in the pharmacological cardioversion. Exclusion criteria included patients with dysrhythmias other SVT, hemodynamic instability, receipt of IV anti-arrhythmic drug(s) in ED or with EMS including adenosine prior to adenosine administration, synchronized cardioversion prior to adenosine administration, receipt of initial dose other than 6 mg, and vulnerable populations. The primary objective is to compare rates of SVT termination between the SST and DST after the initial 6 mg dose of adenosine. Secondary objectives will evaluate the rate of SVT termination after up to three doses of adenosine, rate of discharge from the ED, cumulative total dose of adenosine administered, incidence of adverse events reported with adenosine administration, and rate of SVT termination among different IV catheter locations and IV-gauge sizes.

RESULTS: TBD

CONCLUSIONS: TBD

9:50am – 10:05am R **Evaluation of Thrombocytopenia Associated with Epoprostenol Therapy** Olympia 2

Presenters: Cami Andreini

TITLE: Evaluation of Thrombocytopenia Associated with Epoprostenol Therapy

AUTHORS: Cami Andreini, Harley Moore, A Shaun Rowe, Ashtyn Keller, McKenzie Lane, Travis Fleming

OBJECTIVE: Determine severity of thrombocytopenia associated with nebulized epoprostenol versus nitric oxide.

SELF ASSESSMENT QUESTION: Which of the following statements is true regarding the outcomes of this study?

BACKGROUND: Among critically ill patients, thrombocytopenia is a common sequalae with a multifactorial origin. Drug therapies including prostaglandin I2 (PGI2) analogs are associated with thrombocytopenia. Epoprostenol is a PGI2 analog with increasing clinical utility in critically ill patients and serves as a reasonable alternative to inhaled nitric oxide given its lower cost and similar efficacy. The relationship between nebulized epoprostenol therapy and thrombocytopenia is poorly defined, with few previous studies demonstrating conflicting outcomes. This study aims to determine the time to and severity of thrombocytopenia associated with nebulized epoprostenol therapy compared to inhaled nitric oxide.

METHODOLOGY: This single-center retrospective cohort study was conducted between January 2015 and April 2023 at the University of Tennessee Medical Center. Patients aged 18 or older were enrolled if they received nebulized epoprostenol or inhaled nitric oxide for at least 30 minutes while admitted to an ICU service. Patients on active chemotherapy, linezolid therapy for greater than 5 days, extracorporeal membrane oxygenation (ECMO) or continuous renal replacement therapy (CRRT), thrombocytopenic at baseline, recent major surgery, or suspected or diagnosed heparin inducted thrombocytopenia were excluded. Eligible patients were screened by receipt of nebulized epoprostenol or nitric oxide and subsequently reviewed via electronic health record to evaluate outcomes. The primary outcome measured was the occurrence of thrombocytopenia, defined as platelet count less than 150,000/mL or a 50% reduction from baseline. Secondary outcomes included duration of therapy to thrombocytopenia, dose associated with thrombocytopenia, intensive care unit length of stay, all-cause in-hospital mortality, and major or minor bleeding.

RESULTS: A total of 662 patients were screened and 139 patients enrolled in this study (epoprostenol=100, nitric oxide=39). Baseline characteristics were well balanced between treatment groups, with no statistically significant differences. Thrombocytopenia occurred in 12 patients (12%) receiving nebulized epoprostenol and 7 patients (18%) receiving inhaled nitric oxide (p=0.36). The average duration of therapy prior to thrombocytopenia was 6 days for both groups. ICU length of stay was similar among patients receiving epoprostenol and nitric oxide therapy (11 days and 12 days, respectively; p=0.64). All cause in hospital mortality while on therapy occurred in 51% of epoprostenol patients and 41% of nitric oxide patients (p=0.29). Major and minor bleeding occurred more frequently in the epoprostenol group (4% and 6%, respectively) compared to nitric oxide (0% and 0%, respectively). No patients experienced fatal bleeding or discontinued therapy secondary to thrombocytopenia.

CONCLUSIONS: The difference in incidence of thrombocytopenia between nebulized epoprostenol and inhaled nitric oxide remains inconclusive.

9:50am – 10:05am R **Revisiting Midodrine Use for Vasopressor Weaning in Intensive Care Unit** Olympia 1

Presenters: Rosy Sijapati

TITLE: Revisiting Midodrine Use for Vasopressor Weaning in Intensive Care Unit

AUTHORS: Rosy Sijapati, Jana B. Mills, Donna McAuley, Nikulkumar Chaudhari

OBJECTIVE: Assess the effectiveness of midodrine in discontinuation of single vasopressor use in ICU patients

SELF ASSESSMENT QUESTION:

BACKGROUND: Intensive care unit (ICU) patients often require intravenous (IV) vasopressors to maintain their blood pressure within the desired range. Some of these patients, despite recovering from acute episodes, can continue to require vasopressors, which can complicate their discharge process from the ICU and extend their hospital stay. Midodrine, an oral medication that stimulates alpha-1 adrenergic receptors, works by constricting blood vessels and increasing peripheral vascular resistance. It has increasingly been used off-label to help patients wean off IV vasopressors and facilitate ICU discharge. However, currently there are no effective clinical trials supporting this approach. The purpose of this study was to assess the effectiveness of various midodrine doses in discontinuing single vasopressor use in adult ICU patients.

METHODOLOGY: This was a single center, retrospective chart review conducted at two community hospitals within the same operating unit from October 2020 to September 2023. The inclusion criteria consisted of adult patients aged 18 and above, who were hospitalized with a single vasopressor agent in the adult ICU units. Exclusion criteria included patients who were previously on midodrine prior to hospitalization, pre-existing dialysis patients on midodrine prior to ICU admission, pregnant individuals, or those with a documented history of midodrine allergy. The primary outcome of the study was time required for the discontinuation of a single vasopressor administration once incorporating midodrine. Secondary outcomes included ICU length of stay, time to ICU discharge readiness (as defined by transfer order to a lower acuity unit), hospital length of stay, percentage of patients requiring midodrine on hospital discharge, and percentage of ICU readmission (within 48 hours of ICU discharge).

RESULTS: The primary endpoint of the study was the time taken to wean from a single vasopressor after initiating midodrine. While patients in the midodrine 10 mg and greater than 10 mg groups demonstrated a shorter median time to wean, the difference was not statistically significant. Additionally, none of the midodrine groups demonstrated a reduced length of stay in the ICU compared to the control group. Although the time to ICU discharge readiness and hospital length of stay appeared to show a difference in the midodrine groups, neither endpoint reached statistical significance. Among patients who were unable to be weaned from the single vasopressor, the most common reasons in both groups were death, followed by the restarting of pressors within 48 hours of discontinuation. Other factors included dose escalation and readmission to the ICU within 48 hours. Further analysis within the specific midodrine dosage groups revealed that 71% of patients in the midodrine 5 mg group, 57% in the 10 mg group, and 83% in the greater than 10 mg group were deemed unweanable.

CONCLUSIONS: While midodrine remains a common practice in clinical use, previous literature has not consistently demonstrated its benefits. None of the midodrine doses investigated in this study showed a significant impact on the discontinuation of single vasopressor therapy. Despite the absence of statistical significance, there was an observed trend suggesting that midodrine at a dosage of 10 mg every 8 hours may hasten the discontinuation of a single vasopressor. Larger randomized controlled trials are necessary to determine whether a particular midodrine dosage can impact the time required to wean from a single vasopressor in adult ICU patients.

9:50am – 10:05am G **Comparison of US and Australian Pharmacy Student Attitudes Towards Careers in Older Adult Care** Athena J

Presenters: Grace Monti

TITLE: Comparison of US and Australian Pharmacy Student Attitudes Towards Careers in Older Adult Care

AUTHORS: Grace Monti, Emma Williams, Daniel Malone, Nadia Mouchaileh, Scott Davis, Tasha Woodall, Mollie Scott

OBJECTIVE: Compare factors driving US and Australian pharmacy students' interest vs disinterest in geriatrics.

SELF ASSESSMENT QUESTION:Which is true when comparing US and Australian pharmacy students' interest in geriatrics?

BACKGROUND: The population of older adults is expanding globally, but there remains a lack of healthcare professionals trained to meet growing care needs. Knowledge of the factors which encourage or discourage students from pursuing a career in geriatrics is crucial to help address shortages in the geriatric workforce. The primary objective of this study was to compare the top factors driving interest vs. lack of interest in geriatrics among United States (US) and Australian pharmacy students.

METHODOLOGY: US pharmacy students were recruited from two different schools, one including a main and satellite campus and the other being a single campus. A 23-item survey was distributed to 611 first- through fourth-year pharmacy students from February through September 2022. These surveys were distributed during class time or via email with a website link. Australian pharmacy students were recruited from a single school to complete a 25-item survey that was distributed to 285 third-year pharmacy students in September of 2020 and to pharmacy interns in February of 2023 via learning management system announcement. In both countries answers where anonymous and participation was voluntary. Data analysis was conducted using Fisher's exact test, descriptive statistics, and t-tests.

RESULTS:A total of 386 responses were collected, 252 from the US and 134 from Australia. Interest in geriatrics was significantly higher in the Australian cohort versus the US cohort (75% interested or extremely interested vs. 51%, $p<0.001$). Interest was not significantly influenced in either country by rural vs. urban upbringing, history of a close relationship with an older adult, or year in school. Students in both countries identified interest in deprescribing (US 47%, Australia 34%) and current increased need for clinicians trained in geriatrics (43%, 31%) as top encouraging factors. Likewise, both US and Australian students indicated that the emotional impact of death and end-of-life care was a top factor discouraging interest in geriatrics (49%, 26%). Students who identified low interest in geriatrics were not necessarily more likely to describe the emotional impact of death as a discouraging factor relative to those who were interested in either country.

There were some differences between the two countries. US pharmacy students ranked past positive experiences with older adults (50%) as a top encouraging factor and identified disinterest in geriatric syndromes (45%) and inadequate exposure to geriatrics (25%) as top discouraging factors. Meanwhile, Australian students indicated concerns over excessively limiting their scope (18%) and professional liability stemming from care of a frail/vulnerable population (17%) as top discouraging factors. Interestingly, Australian students identified complexity/clinical acuity of older adults as both a top encouraging and top discouraging factor (29% and 16%, respectively). Australian students registered a higher level of agreement that they are adequately exposed to geriatrics in the didactic curriculum vs. US students (40% vs. 66%, $p<0.001$), while perceptions about exposure in the experiential curriculum were no different. Also, perceptions about inadequate exposure to geriatrics did not appear to predict disinterest in geriatrics in either country (US $p=0.49$, Australia $p=0.062$).

CONCLUSIONS: US and Australian pharmacy students identified similar factors as encouraging vs. discouraging interest in a career in older adult care. Australian students expressed greater interest in geriatrics, possibly due to increased exposure in the curriculum.

9:50am – 10:05am F **Duration of antibiotic therapy for common infections at Wellstar North Fulton Medical Center** Athena C

Presenters: Catherine Hong Tran

TITLE: Duration of antibiotic therapy for common infections at Wellstar North Fulton Medical Center

AUTHORS: Catherine Hong Tran, Essie Samuel, Yolanda Whitty

OBJECTIVE: Optimize infection therapy durations via WNFMC provider education

SELF ASSESSMENT QUESTION: How can you enhance infection therapy durations through provider education?

BACKGROUND: The purpose of this study is to review current durations of therapy of common infections such as UTIs, CAP, and cellulitis at Wellstar North Fulton Medical Center (WNFMC) and utilize provider education to bridge the gaps identified during the study.

METHODOLOGY: The design of this study will be an observational cohort study of patients ≥ 18 years of age admitted to WNFMC with a diagnosis of kidney and urinary tract infections, simple pneumonia, or cellulitis receiving greater than 72 hours of antibiotic therapy. This study will serve as a quality improvement initiative using evidence-based guidelines to improve antibiotic treatment duration at WNFMC. Provider education will be implemented among various healthcare teams regarding the observed and recommended antibiotic duration of therapy at WNFMC. The pre-intervention group population will be selected from patients admitted between April and July 2023 while those in the post-intervention group will be selected from patients admitted after provider education between November 2023 and February 2024. Provider education will take place during the months of September and October of 2023. SlicerDicer, a reporting tool in the electronic health record EPIC, will be used for data collection.

RESULTS: The post-intervention period saw a 20.45% decrease in excess days for CAP, dropping from 44 to 35 days, and 65% decrease in excess days for cellulitis, dropping from 20 to 7 days. The intervention had no significant impact on UTI, as there was no difference (0%) observed between the pre- and post-intervention periods.

CONCLUSIONS: The analysis of post-intervention data reveals significant improvements in antibiotic therapy duration for common infections, with a notable 65% decrease in excess days of therapy for cellulitis and a 20.45% reduction for CAP, showcasing enhanced patient care and resource utilization. Factors like persistent symptoms and concurrent infections influenced prolonged treatment durations, emphasizing the need to prevent increasing costs associated with extended hospital stays. Correlations between length of stay and costs highlight the importance of evidence-based interventions in managing infections effectively, improving patient outcomes, and mitigating financial burdens. Studies by Royer et al. (2018) and Hanretty et al. (2018) support antimicrobial stewardship interventions' benefits in limiting antibiotic duration, promoting therapy adherence, decreasing resistance rates, and alleviating financial burdens. Moving forward, interventions should refine prescribing practices to uphold standards of care and mitigate risks associated with antibiotic overuse and resistance, reflecting a commitment to enhancing patient care and advancing clinical practice.

9:50am – 10:05am F **The Impact of an Initial Specimen Diversion Device (ISDD) on Prescribing Practices of Vancomycin** Athena D

Presenters: Tara Smith

TITLE: The Impact of an Initial Specimen Diversion Device (ISDD) on Prescribing Practices of Vancomycin

AUTHORS: Tara Smith, Tyler Martin, Ryan Oliver, Geren Thomas

OBJECTIVE: To investigate if initiating an ISDD correlated with a decrease of vancomycin initiations.

SELF ASSESSMENT QUESTION: In-Progress

BACKGROUND: Blood culture contamination (BCC) by skin flora causes unnecessary exposure to antibiotics. The Clinical Laboratory Standards Institute (CLSI) recommends that BCC rates should be under 3%. ISDDs are devices that divert the first 1-2 mL of blood into a separate container from the rest of the sample to reduce BCC. There has been an observed correlation with ISDDs and the reduction in blood culture contamination rates to under 1%. Reducing rates of BCC can potentially reduce exposure to antibiotics and patient length of stay.

METHODOLOGY: This was a single center retrospective quasiexperimental study of inpatients with blood cultures drawn in the ER between August 1, 2022, and October 31, 2023. An ISDD was initiated in the ER starting 3/14/2023. Patients were included if they were over 18 years old and were started on vancomycin in response to positive blood cultures drawn in the ER. Patients were excluded if they were started on vancomycin prior to blood cultures resulting or had blood cultures drawn outside of the ER. Patients who met inclusion criteria during the specified time frame were placed into the pre-ISDD cohort if their blood cultures were drawn on or before March 13, 2023, or into the ISDD cohort if drawn on or after March 14, 2023. Patient data including demographics, Charlson Comorbidity Index score, immunocompromising condition, vital signs, diagnosis for vancomycin initiation, methicillin-resistant Staphylococcus aureus (MRSA) risk factors, vancomycin length of therapy, and overall length of stay, was collected via retrospective chart review.

RESULTS: Of the 91 patients who met inclusion criteria, 50 patients were in the pre-ISDD cohort, and 41 patients were in the ISDD cohort. There were no significant differences in comorbidities or SIRS criteria between groups. In both cohorts, the most common reason for vancomycin initiation was due to blood culture contamination. Although there was no significant difference in contamination between groups, the ISDD group had proportionally more cultures that fit the hospital’s definition of contamination than the pre-ISDD group (60.9% vs 52% respectively, p=0.391). The median length of vancomycin therapy in both groups was 2 days, with an interquartile range (IQR) of 1 to 3.25 days in the pre-ISDD group and an IQR of 1-3 in the ISDD group. The median length of stay in the pre-ISDD group was 6.5 days [IQR 4-11.25 days] and 6 days [IQR 4-11 days] in the ISDD group.

CONCLUSIONS: Implementing an ISDD in the ER of a 250-bed community hospital did reduce the amount of vancomycin initiations, but there was a trend towards more contamination compared to before implementation. The pre-ISDD group potentially had fewer blood cultures that met the definition for contamination due to multiple contaminant organisms being grown in 1/2 blood cultures, causing them to be labeled as polymicrobial instead.

9:50am – 10:05am T **Evaluating the Utility of a Subcutaneous Insulin Protocol in Diabetic Ketoacidosis** Athena B

Presenters: M. Ally White

TITLE: Evaluating the Utility of a Subcutaneous Insulin Protocol in Diabetic Ketoacidosis

AUTHORS: M. Ally White, PharmD; P. Blair Miller, PharmD; Matt Wallace, PharmD, BCPS

OBJECTIVE: To evaluate the effectiveness of a subcutaneous insulin protocol in reducing length of stay and hypoglycemic events compared to the use of IV regular insulin infusions in the ICU setting.
SELF ASSESSMENT QUESTION: Which of the following is a benefit of a subcutaneous insulin protocol over ICU admission for diabetic ketoacidosis? A. higher nursing burden; B. reduced length of stay; C. increased time to resolution of DKA; D. more ICU admissions

BACKGROUND: Diabetic ketoacidosis (DKA) is a life-threatening emergency associated with increased morbidity, mortality, high costs, and use of healthcare resources. Intravenous regular insulin has historically been the mainstay of therapy for DKA resolution but requires frequent monitoring and intensive care unit (ICU) level care. Beginning December 4, 2020, Vanderbilt University Medical Center (VUMC) implemented a protocol to conserve ICU beds and staff by treating appropriate patients with DKA on general medicine floors. The objective of this study is to evaluate the effectiveness of this protocol in reducing length of stay and hypoglycemic events. METHODOLOGY: This was an IRB-approved, retrospective, observational cohort study at a large academic medical center. Patients included adult (greater than 18 years of age) individuals with a DKA diagnosis upon admission. The control group included patients admitted to the ICU with non-severe DKA (pH greater than 7) who received IV insulin from 1-1-2019 to 12-3-2020. The subcutaneous (SQ) protocol group included patients admitted for DKA treated with SQ insulin, admitted to a general medicine unit from 12-4-2020 to 12-31-2022. Patients were excluded if they were pregnant or had severe DKA (pH less than 7). The primary outcome was length of stay. Secondary outcomes included time to blood glucose less than 250mg/dL, time to anion gap closure (anion gap < 12), and number of point of care (POC) glucose checks per day. Safety endpoints were evaluated to be the number of hypoglycemic rescue administrations and ICU admissions due to change in clinical status. RESULTS: Patients in the control group versus SQ protocol group were 58% vs 44% males, and 65% vs 64% with type 1 diabetes, respectively. For the control group versus SQ protocol group, the mean age was 42.9 vs 39.5 years, admission blood glucose 561 mg/dL vs 420 mg/dL, and serum pH 7.19 vs 7.16. For the primary outcome, the median length of stay for the control group was 3.59 days versus 2.87 days in the SQ protocol group (p=0.035). The mean time to blood glucose less than 250 mg/dL was 6.7 hours for the control group and 7.6 hours for the protocol group (p=0.39). The mean time to anion gap closure in the control group was 11.5 hours versus 12.1 hours in the SQ protocol group (p=0.70). The mean number of POC blood glucose checks per day was 9.7 for the control group versus 8.1 for the SQ protocol group (p=0.003). There were 99 administrations of dextrose for hypoglycemia in the control group compared to 53 in the SQ protocol group. CONCLUSIONS: The results of this study showed a significant reduction in length of stay for patients admitted to an adult general medicine unit with DKA compared to patients admitted to the ICU for insulin infusion. There was no significant difference in time to blood glucose less than 250mg/dL or time to anion gap closure. There were half as many administrations of dextrose in the SQ protocol group, suggesting that the protocol is a safe and effective method to managing DKA patients rather than a costly ICU admission. Overall, this study found that a SQ insulin protocol has a role in DKA management in specific patient populations and has been shown to decrease hospital length of stay with no difference in time to therapeutic effect and no increased incidence of dextrose administration for hypoglycemia.

9:50am – 10:05am Y **Abatacept Versus Rabbit Anti-Thymocyte Globulin for Graft-Versus-Host-Disease Prevention** Athena A

Presenters: Kelsey Anne Forrest

TITLE: Abatacept Versus Rabbit Anti-Thymocyte Globulin for Graft-Versus-Host-Disease Prevention

AUTHORS: KA Forrest, LB Parsons, K Abernathy, D Siler, R Matthews, C Moore, M Battiwalla

OBJECTIVE: The aim of this study is to compare the outcomes from adult HSCT recipients who received either abatacept or rATG for aGVHD prophylaxis.

BACKGROUND: Acute graft-versus-host disease (aGVHD) is the leading cause of non-relapse mortality following allogeneic hematopoietic stem cell transplantation (HSCT). Pharmacologic GVHD prophylaxis is incorporated into the HSCT preparative regimen, with a backbone including a calcineurin inhibitor combined with an antimetabolite. Additional agents, including rabbit antithymocyte globulin (rATG) or abatacept, can be added to further reduce the risk of GVHD. Abatacept is approved for use in patients undergoing a HSCT from a mismatched donor based on improved rates of severe aGVHD compared with CNI and methotrexate alone (2.3% vs. 30.2%). Currently, there are no head-to-head studies comparing abatacept to rATG. The objective of this study is to compare early outcomes in patients undergoing HSCT who received either rATG or abatacept for GVHD prophylaxis.

METHODOLOGY: This single center, retrospective review included adult allogeneic HSCT recipients that received a myeloablative conditioning regimen and either rATG or abatacept as GVHD prophylaxis from August 1st, 2021 through July 31st, 2023. The primary outcome was the incidence of aGVHD by Day +100. Secondary outcomes

included the incidence of moderate to severe aGVHD, any GVHD between Day +100 to +180, graft failure, treatment related mortality, GVHD-free survival, relapse-free survival, time to engraftment, time to relapse, overall survival, and time to mortality.

RESULTS: Twenty-eight patients were included in this study (abatacept=10; rATG=18). The majority of patients received HSCT due to acute myeloid leukemia and from a matched unrelated donor. No difference existed in the incidence of aGVHD by Day +100 between abatacept and rATG (60% vs 61%, p=1). Grades III and IV aGVHD by Day +100 occurred in 11% of patients who received rATG. There was no incidence of Grade III-IV aGVHD in the abatacept group (p=0.52). GVHD-free survival at Day +180 was similar between groups (abatacept v. rATG: 40% vs 28%, p=0.68). All other outcomes were similar.

CONCLUSIONS: Abatacept or rATG can be used to prevent aGVHD in patients undergoing a HSCT from a mismatched or matched unrelated donor. Abatacept may decrease severity of aGVHD. More studies are needed to assess long-term outcomes including chronic GVHD.

9:50am – 10:05am 1 **Impact of Anemia Monitoring at Admission on Blood Transfusions Received by Kidney Transplant Recipients** Athena I

Presenters: Ethan Eilo

TITLE: Impact of Anemia Monitoring at Admission on Blood Transfusions Received by Kidney Transplant Recipients

AUTHORS: Ethan Eilo, Caroline Gatzke, Kwame Asare

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: To assess if proactively monitoring for and treating anemia pre-transplant reduces the number of packed red blood cell (PRBC) transfusions administered post-transplant.

METHODOLOGY: Eligible participants were adult kidney transplant recipients at Ascension Saint Thomas Hospital West (ASTHW) between January 1, 2018 and December 31, 2022.

Patients were excluded if they refused to accept PRBC transfusions, were recipients of a dual-organ transplant, received PRBCs in the operating room or post-anesthesia care unit, or were pregnant or incarcerated at the time of evaluation. Patients meeting inclusion criteria were stratified by receipt of iron studies on admission. The primary outcome compared the proportion of kidney transplant recipients with anemia monitoring and treatment during kidney transplant admission to those without on the units of PRBCs administered within one-month post-transplant. Secondary outcomes included incidence of delayed graft function (DGF), hemoglobin (Hgb) level at one-month post-transplant, and readmission within one-month post-discharge.

RESULTS: 100 patients with anemia monitoring on admission and 79 patients without anemia monitoring on admission were included in the IRB-approved study. Baseline characteristics were similar between groups with the exception of patients with a cold ischemic time less than 12 hours or greater than 24 hours. At one-month post-transplant, more patients in the anemia monitoring group did not receive any PRBC transfusions (62% vs 48.1%; p=0.063) compared to patients without anemia monitoring. In patients that received PRBC transfusions, those with anemia monitoring were 37% less likely to receive more than one PRBC transfusion compared to those without anemia monitoring (23% vs 36.7%; ARR=14%; p=0.045). Mean Hgb at one-month post-transplant was also found to vary between groups, with the anemia monitoring group experiencing less of a decline from baseline (-2.68 vs -1.5; p=0.001).

CONCLUSIONS: In kidney transplant recipients at ASTHW, monitoring and managing anemia on admission was shown to decrease the number PRBC transfusions administered to patients and reduce the decline of Hgb at one-month post-transplant. Results from this study highlight the importance of ordering iron studies pre-transplant and starting treatment for anemia before discharge. Further research should be directed towards assessing the optimal treatment(s) for anemia during the initial months following kidney transplantation.

10:10am – 10:25am R **Evaluating potential benefit from use of subcutaneous insulin protocol for diabetic ketoacidosis** Olympia 1

Presenters: Janelle Trosclair

TITLE: Evaluating potential benefit from use of subcutaneous insulin protocol for diabetic ketoacidosis

AUTHORS: Janelle Trosclair, Megan Heath, Doug Carroll

OBJECTIVE: List potential benefits of a subcutaneous insulin protocol for mild to moderate DKA.

SELF ASSESSMENT QUESTION:

BACKGROUND: Over 30 million people in the United States, 11% of the population, have diabetes. Diabetic ketoacidosis (DKA) is a life-threatening, preventable complication of diabetes that involves hyperglycemia, ketonuria/ketonemia, and acidosis. Over recent years there has been an increase in hospital admissions related to DKA, the majority of which are admitted to intensive care units (ICU). The growing needs for treatment and financial burden of this disease state prompts an evaluation of potential interventions that may be implemented to benefit both patients and the health care system that cares for them. The primary objective is to determine the potential benefit in implementation of a subcutaneous insulin protocol for mild to moderate cases of DKA in terms of decrease in intensive care unit utilization at DCH Regional Medical Center.

METHODOLOGY: This study is a retrospective chart review focused on patient admissions with a diagnosis of DKA from July 2022 to June 2023. The electronic health record along with ICD-10 codes and problem lists were used to generate a list of patient admissions. Patients were excluded if they were under 19 years of age, pregnant, or transferred from an outside facility. Data collected included laboratory parameters to classify DKA, unit of admission, length of time on insulin drip, length of hospital stay, hours of ICU stay, and 30-day readmission. American Diabetic Association criteria were used to categorize DKA severity.

RESULTS: Of the 153 charts screened, 100 were included in this chart review. 50 charts (50%) met criteria for mild to moderate DKA. With an average ICU length of stay of 2 days, 50 patients meeting mild to moderate DKA severity would equate to 100 days of ICU stay avoided. Using facility standard patient charges, this equates to a decrease of $120,000 in patient charges for fees per day admitted.

CONCLUSIONS: Assessing the primary objective of this project shows that half of the patient stays for a diagnosis of DKA are categorized as mild to moderate cases per ADA classification criteria. There is a large potential benefit of implementing a subcutaneous insulin protocol in reducing ICU admissions, and therefore reducing financial costs.

10:10am – 10:25am R **Heparin vs. Enoxaparin for DVT prophylaxis after Intracerebral Hemorrhage** Parthenon 1

Presenters: Lillian Zulu

TITLE: Heparin vs. Enoxaparin for DVT prophylaxis after Intracerebral Hemorrhage

AUTHORS: Lillian Zulu, Emily Bowers, Erik Shaw

OBJECTIVE: Assess the safety of enoxaparin and heparin in patients with intracerebral hemorrhage.

SELF ASSESSMENT QUESTION: True/False. The incidence of recurrent intracerebral hemorrhage was higher in patients taking LMWH?

BACKGROUND: Patients with intracerebral hemorrhage (ICH) are at increased risk of developing venous thromboembolism (VTE), including deep venous thrombosis (DVT) and pulmonary embolism (PE). The increased risk of VTE in these patients may be attributed to factors such as venous stasis resulting from immobility and hemiplegia, coupled with endothelial damage and hypercoagulability. However, chemoprophylaxis with unfractionated heparin (UFH) or low molecular weight heparin (LMWH) remains an ongoing debate due to concerns of bleeding, hematoma expansion, and ICH recurrence. Current American Stroke Association guidelines recommend UFH or LMWH heparin 24-48 hours post-ICH with a stable head CT. Although studies show UFH and LMWH effectively prevent PE and DVTs in ICH patients, direct comparisons between the two agents are lacking. The aim of this study is to compare the safety of UFH versus LMWH for DVT prophylaxis in patients with ICH.

METHODOLOGY: This was a single-center cohort study retrospectively of patients diagnosed with intracerebral hemorrhage (ICH) receiving either LMWH or UFH for VTE prophylaxis between August 2015 and September 2023. Patients were excluded if LMWH or UFH was initiated greater than 96 hours from ICH, had renal failure (creatinine clearance less than 30 ml/min), malignancy, cerebral venous thrombosis coagulopathy, or were on oral anticoagulants (OAC) without documented reversal. Primary outcome assessed was worsening ICH. Secondary outcomes included a composite of neurologic decompensation, the incidence of major bleeding defined by the international society on thrombosis and hemostasis (ISTH), occurrence of VTE (PE or DVT) during patient hospitalization confirmed by imaging, incidence of heparin induced thrombocytopenia (HIT), intensive care unit (ICU) length of stay (LOS), hospital LOS, and mortality.

RESULTS: The study included 68 patients, with 23 (34%) in the UFH group and 45 (66%) in the LMWH group. Baseline characteristics were similar between groups with ICH scores predominantly 0-1 for both groups. The average time to treatment initiation in the LMWH group was 64 (± 21) hours vs UFH group 66 (±16) hours. The mean Glasgow Coma Scores (GCS) for LMWH was 12 (±4.4) vs. 11 (±4.33) in UFH group. The primary outcome occurred in 1 (2.22%) patient with LMWH and 1 (4.35%) patient with UFH (p = 1.00). In both cases patients had higher ICH scores of 4 and sustained neurological decompensation throughout admission. Secondary outcomes revealed no significant differences, except for decrease in GCS score in the neurologic decompensation component, with LMWH at 1 (2.22%) and UFH at 4 (17%) (P=0.041). Additionally, the hospital length of stay, in the UFH group averaged 17 ± 16 days compared to 9 ± 10 days in the LMWH group (P= 0.024). Decrease in GCS scores in the UFH group may be linked to extended hospitalization. Our study had some limitations. First, patients with higher risk of bleeding or developing a thrombosis were excluded. Additionally, the sample size was small and could potentially impact the ability to detect differences. Lastly, repeat CT scans after VTE prophylaxis was not available for all the patients.

CONCLUSIONS: The safety of LMWH compared to UFH for VTE prophylaxis in patients with ICH showed no statistically significant difference.

10:10am – 10:25am L **Impact of High-Dose Levetiracetam for Neonatal Seizures** Athena A

Presenters: Emily Steinbock

TITLE: Impact of High-Dose Levetiracetam for Neonatal Seizures

AUTHORS: Emily Steinbock, Brianna Beldon, Tanya Makhlouf, Allie Rivera

OBJECTIVE: To evaluate the efficacy of a high-dose IV bolus of levetiracetam for seizure cessation in neonates

BACKGROUND: The 2011 Global Campaign Against Epilepsy guidelines recommend phenobarbital as the first-line agent in neonatal seizures, however, phenobarbital has undesirable side effects for the developing brain, including the acceleration of neuronal apoptosis. As a result, levetiracetam has become an appealing first-line agent for neonatal seizures due to its more desirable safety profile. Existing literature evaluating the efficacy of levetiracetam compared to phenobarbital as first-line treatment for neonatal seizures is limited. Studies have evaluated a wide range of doses for initial intravenous (IV) levetiracetam boluses with varied results. Therefore, it is important to determine if levetiracetam is as effective a phenobarbital for neonatal seizures and at what dose should treatment be initiated. The purpose of this study is to evaluate the efficacy of a high-dose IV bolus of levetiracetam for seizure cessation in neonates when used first-line.

METHODOLOGY: This was a multi-centered, IRB-approved, retrospective cohort study. Patients were included if they had a gestational age less than 44 weeks, admitted to the neonatal intensive care unit, and were being treated for suspected or confirmed neonatal seizures. Exclusion criteria included the administration of benzodiazepines within one hour of the administration of any antiseizure medication. A recent practice change was implemented using a loading dose of levetiracetam 60 mg/kg IV as initial treatment for neonatal seizures following a historical practice of levetiracetam 20-60 mg/kg IV bolus 20 mg/kg IV bolus of phenobarbital. Patients treated between January 1, 2022 and December 31, 2023 were evaluated based on which initial antiseizure medication and dose they received. The primary outcome was seizure cessation, which was measured by the need for additional antiseizure medications. Secondary outcomes included the number of boluses of each medication administered, the number of patients requiring maintenance therapy, and the number of patients discharged on maintenance therapy.

RESULTS: Among the 33 patients included in this cohort study, 16 patients received an initial IV bolus of low-dose levetiracetam (< 60mg/kg), 7 patients received phenobarbital (20 mg/kg), and 10 patients received high-dose levetiracetam (60 mg/kg). Most patients were male (n=19, 58%), with an average gestational age of 36 weeks, and an average birth weight of approximately 3 kg. The most common suspected etiology was hypoxic-ischemic encephalopathy (n=19, 58%). There was no statistically significant difference in need for additional antiseizure medications. However, compared to patients who received high-dose levetiracetam initially, patients who received an initial IV bolus of low-dose levetiracetam were more than 2.5 time as likely to require a bolus of an additional agent (OR 2.6, CI 0.39-17.45, p = 0.181). Most patients were started on maintenance therapy, however, more patients in the low-dose levetiracetam group were discharged on maintenance therapy compared to the high-dose levetiracetam group, (n=14, 88% vs. n=3, 30%, respectively).

CONCLUSIONS: This study does not show a difference in the need for additional antiseizure medications between high-dose levetiracetam and phenobarbital, but results were consistent with previous literature showing levetiracetam is no worse than phenobarbital as a first-line option. This study also showed that the initial agent selection had no significant effect on the need for maintenance therapy, however, it is important to consider the risks of toxicity associated with long-term exposure to phenobarbital when selecting maintenance therapy. Future studies are needed to further evaluate long-term neurological outcomes of patients initially treated with and maintained on levetiracetam in comparison to those who received phenobarbital.

10:10am – 10:25am E **Comparison of ibuprofen, indomethacin, and acetaminophen for treatment of PDA in preterm infants** Athena H

Presenters: Carly Albright

TITLE: Comparison of ibuprofen, indomethacin, and acetaminophen for treatment of PDA in preterm infants

AUTHORS: Carly Albright, Elizabeth McCormick, Erin Massarello

OBJECTIVE: Identify the incidence of treatment-associated complications observed in this study.

SELF ASSESSMENT QUESTION: Based on the results of this study, which medication was associated with the most hemorrhagic events?

BACKGROUND: The ductus arteriosus is a fetal-specific vessel that diverts oxygenated blood from the lungs to the placenta. It typically closes shortly after birth in full-term infants; however, when the vessel fails to close, neonates are deemed as having a patent ductus arteriosus (PDA). PDA is associated with severe complications necrotizing enterocolitis, bronchopulmonary dysplasia, acute kidney injury, pulmonary hemorrhage, and mortality. Optimal treatment for PDA remains unclear. Nonsteroidal anti-inflammatory drugs (NSAIDs) ibuprofen and indomethacin, along with acetaminophen, are used in the treatment of PDA. NSAIDs work by inhibiting cyclooxygenase, reducing prostaglandin synthesis and causing the ductus arteriosus to constrict. Acetaminophen, is also theorized to block prostaglandin synthesis, leading to similar effects. The purpose of this study is to evaluate a single course of therapy with one of the three current PDA treatment options (ibuprofen, indomethacin, and acetaminophen) in achieving clinical improvement of a hemodynamically significant PDA in preterm neonates.

METHODOLOGY: This study was an IRB-approved, multicenter, retrospective chart review of premature neonates in NICUs at Wellstar Kennestone Regional Medical Center, Wellstar Cobb Medical Center, Wellstar North Fulton Medical Center, and Wellstar Atlanta Medical Center who received one of the three pre-specified medications to help facilitate PDA closure from 8/1/2018 to 8/1/2023. 192 patients were identified via an EPIC SlicerDicer report; after screening, 68 patients were included. Exclusion criteria included any NSAID or acetaminophen use not related to the treatment of PDA, severe cardiac anomalies requiring intervention, and a diagnosis of Trisomy 21.

RESULTS: Among 68 patients with PDA who received a single course of one of the three study medications, 33 (49%) experienced hemodynamic improvement. The highest success rate was observed in the indomethacin group (15 of 26, 58%), followed by ibuprofen (7 of 15, 47%) and acetaminophen (11 of 27, 41%). The average gestational age in this study was 24.9 weeks; 60% of patients were female. Median birth weight was 670 grams (IQR: 523.8 – 894.3). Of note, three patient deaths were identified during data collection. Limitations to this project include a small sample size, many patients meeting exclusion criteria, and inconsistent documentation from providers for key points of interest.

CONCLUSIONS: All three medications, indomethacin, ibuprofen, and acetaminophen are currently used in clinical practice for the treatment of hemodynamically significant PDA. All of these agents have been used with success. The choice of agent ultimately relies on patient-specific factors; however, it is important to emphasize a few key findings: Patients on acetaminophen experienced more hemorrhagic events than the other two groups, patients on indomethacin experienced more renal adverse events, and the three patient deaths identified in this study were treated with acetaminophen. Despite these findings, a causal relationship should not be implied as this study was not focused on assessing efficacy. Larger studies with ample representation from multiple facilities would be beneficial to help further elucidate the most optimal drug for hemodynamic improvement in neonatal PDA.

10:10am – 10:25am ' **Statin Intolerance Documentation & Impact on Statin-Related Quality Measures within a Health System** Athena I

Presenters: Taylor Coston, PharmD, MPH

TITLE: Statin Intolerance Documentation & Impact on Statin-Related Quality Measures within a Health System

AUTHORS: Taylor Coston, Amanda Moyer, Adam Pizzuti, Lauren Schultz

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Statin Use in Persons with Diabetes (SUPD) and Statin Therapy for Patients with Cardiovascular Disease (SPC) are quality measures within the Medicare Stars Rating System set forth by the Centers for Medicare and Medicaid services. Health plans are rated on these quality measures, and ratings impact financial performance and marketing opportunities. Though statin use is supported by high quality evidence in diabetes and cardiovascular disease, patients may not be taking a statin due to intolerance. Statin intolerance is defined by the National Lipid Association as the inability to tolerate at least two statins due to adverse effects upon statin initiation or escalation, with the most reported adverse effect involving muscle related symptoms (also known as statin-associated muscle symptoms, or SAMS). The purpose of this study is to determine the impact of documented statin intolerance on the SUPD and SPC quality measures for patients within Medicare Advantage (MA) plans contracted with the inVio Health Network and to identify opportunities for statin intolerance documentation and management within the Prisma Health system.

METHODOLOGY: We conducted a retrospective case-control chart review involving patients with United Health Care MA Plans contracted with the inVio Health Network included in the SUPD and SPC quality metrics who are attributed to Prisma Health primary care providers in both the Prisma Health Midlands and Upstate markets for the calendar year 2022. Our primary endpoint includes a chart review to identify documented statin intolerance (defined as any documentation by a provider or another member of the healthcare team) in patients who failed the SUPD or SPC measure as well as patients who passed the SUPD or SPC measure. Our secondary endpoint was to determine the number of charts with ideal statin intolerance documentation and the number of patients with any documented re-trialing attempts. Qualitative data will be analyzed utilizing Chi-Square or Fisher’s Exact. Qualitative data will be analyzed using descriptive statistics. Demographics collected include zip code of patient’s residence, ethnicity, race, and sex given at birth. Results and conclusions are currently in progress.

RESULTS: TBD

CONCLUSIONS: TBD

10:10am – 10:25am M **Impact of Implementing a Hospital Outpatient Infusion Clinic Pharmacist Service** Athena G

Presenters: Megan Bell

TITLE: Impact of Implementing a Hospital Outpatient Infusion Clinic Pharmacist Service

AUTHORS: Megan Bell, Elizabeth Egawa, Jessica Brinkley, Stephanie Grimes, Danielle Yates, Susan Roberts

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: After a large net loss was identified through income statements in the outpatient infusion clinic at Blount Memorial Hospital, a pharmacist was assigned to the outpatient infusion clinic to identify areas of potential cost savings opportunities. Prior to the addition of a pharmacist in the outpatient infusion clinic, the pharmacist's duty was solely order entry of a medication when the patient arrived to receive an infusion. Following the addition of a pharmacist, potential interventions that were identified include enrolling patients in co-pay assistance and patient assistance, completing prior authorizations, and coordinating medication shipments.

METHODOLOGY: This is an IRB-approved, retrospective, cohort analysis to determine the impact of implementing an outpatient infusion pharmacist service on financial savings, nursing satisfaction, and patient satisfaction. Financial analytics and electronic health record reports were generated for specified time frames before and after the addition of a pharmacist service to the outpatient infusion clinic. The financial impact was analyzed through completion of prior authorizations, co-pay program enrollment, and patient assistance programs.

The primary objective is to measure the financial impact of targeted high-cost specialty medication infusions. Secondary objectives include determining overall financial impact and measuring nursing and patient satisfaction.

RESULTS: A total of 1,137 doses were evaluated, with 444 in the pre-intervention group and 693 in the post intervention group. For the primary outcome of financial impact of targeted high-cost specialty medication infusions, the net loss was $626,402 ($1,411/dose) pre-invervention versus $589,886 ($851/dose) post-intervention. For the secondary outcome of overall financial impact on all medications administered in the infusion clinic, the net income was $10,540 in the pre-intervention group and $225,564 in the post intervention group. Nursing satisfaction scores improved in timeliness of medication deliveries, pharmacy's contribution to patient care, and overall satisfaction with pharmacy services in the post-intervention group. Patient satisfaction scores increased in the post-intervention group in timeliness of infusion after arrival and overall satisfaction with pharmacy services and decreased slightly in understanding of costs and ways to afford medications.

CONCLUSIONS: This project showed that the addition of a pharmacist service to our outpatient infusion clinic reduced our net losses on high-cost infusion medications. Our pharmacists had the biggest impact in patient enrollment in free drug and co-pay assistance programs. Our overall net profit increased after the addition of a pharmacist service. Patients and nursing staff were more satisfied with pharmacy services with the addition of a pharmacist to the outpatient infusion clinic.

10:10am – 10:25am C **Efficacy and Safety of Labetalol Versus Hydralazine in Acute Blood Pressure Management** Parthenon 2

Presenters: Mallory McClung

TITLE: Efficacy and Safety of Labetalol Versus Hydralazine in Acute Blood Pressure Management

AUTHORS: Mallory McClung, John Michael Herndon, Alyssa Osmonson, Nathan Pinner

OBJECTIVE: Evaluate and compare the efficacy and safety of IV PRN labetalol and hydralazine in patients with acute hypertension

SELF ASSESSMENT QUESTION: Is there a predictable BP lowering response with IV PRN labetalol and hydralazine

BACKGROUND: Current guidelines do not explicitly detail which antihypertensive agents are recommended for acute BP management in hypertensive patients. Acute BP lowering is a process that can incur undesired effects if BP is lowered by a substantial amount in a short amount of time, therefore, antihypertensive agents used in the acute setting should be effective yet predictable. Several IV PRN agents are recommended for use in hypertensive crisis, including labetalol and hydralazine, but guidelines do not preference for the use of one agent over another agent. Previous studies have been conducted comparing antihypertensive agents in the inpatient setting, with conflicting results.

METHODOLOGY: This was a retrospective chart review of hospitalized patients with documented administration of IV PRN labetalol and/or hydralazine. Patients 19 years of age or older with documented receipt of IV PRN labetalol and/or hydralazine were included. Patients were excluded if they were on continuous IV sedation and/or analgesia at the time of administration, received additional PRN antihypertensive agents within 2 hours of study medication, received concomitant continuous IV antihypertensive agents upon administration of study medication, or were pregnant or incarcerated. The primary endpoint was average blood pressure lowering 2 hours after administration of either study agent. Secondary endpoints were blood pressure lowering at 4 hour intervals up to 24 hours after administration of either agent and requirement of additional PRN antihypertensive agents between 2 and 12 hours after administration of the study drug. Safety endpoints included acute kidney injury within 48 hours, exaggerated BP response defined as SBP lowering of greater than or equal to 25% within 2 hours, and any of the following within 24 hours of administration of study medication: bradycardia, tachycardia, or hypotension.

RESULTS: The average BP lowering within 2 hours after study drug administration was 22 mmHg in the labetalol group, compared to 32 mmHg in the hydralazine group. In the labetalol group, 16% of patients experienced an exaggerated response to therapy within 2 hours of study drug administration, whereas 24% of patients in the hydralazine group experienced an exaggerated response. In regards to the percentage of patients that required additional doses of the designated antihypertensive agent to maintain a desired BP goal, around 9% of labetalol patients required additional dosing while 23% of hydralazine patients required additional dosing for sustained blood pressure control. In the labetalol group, 2.6% of patients experienced hypotension compared to 7% of hydralazine patients. In terms of tachycardia, 30% of labetalol patients experienced tachycardia, while 20% of hydralazine patients experienced tachycardia. Zero labetalol patients experienced bradycardia compared to 3.6% of patients in the hydralazine group. When evaluating the occurrence of acute kidney injury (AKI), 7% of patients in the labetalol group met criteria to be considered as having an AKI compared to 10% of patients in the hydralazine group.

CONCLUSIONS: Overall, hydralazine demonstrated greater BP lowering within 2 hours but required more repeat dosing to maintain a desired BP goal. Incidence of adverse effects between agents was highly variable, but baseline vitals may have influenced safety outcomes. Further research is needed with larger patient populations to determine if certain IV PRN antihypertensive agents are associated with favorable clinical outcomes.

10:10am – 10:25am R **Association of Selective Serotonin Reuptake Inhibitors with Bleed Risk in Traumatic Brain Injury** Olympia 2

Presenters: Rebekah Lewis

TITLE: Association of Selective Serotonin Reuptake Inhibitors with Bleed Risk in Traumatic Brain Injury

AUTHORS: Rebekah Lewis, Joe Kramer, Molly Bennett, Jennie Kellam

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Depression and anxiety have been on the rise and increased exponentially after the COVID-19 pandemic, leading to high outpatient use of selective serotonin reuptake inhibitors (SSRIs). SSRIs increase the serotonergic activity in the brain but in return decrease the storage of serotonin in platelets which theoretically could increase bleed risk. In a previous meta-analysis (Laporte et al. 2017) of non-trauma patients, the clinical significance of this side effect was unclear, leading providers to question this side effect in clinical practice. Pre-trauma SSRI use has little to no data in the traumatic brain injury (TBI) population. Trident Medical Center is a level II trauma center that averages 2500 traumas yearly with around 500 being level I. In this study, we aim to evaluate the association of pre-trauma SSRI use and its correlation to head bleeds and trauma outcomes.

METHODOLOGY: A single center retrospective study will be conducted on patients with a TBI who presented within the time frame of January 2023 – December 2023. This study is exempt from the Institutional Review Board. Data will be obtained from Trident Health System's trauma registry and electronic medical records. Patients will be included if they were admitted as a trauma (level not specified), over the age of 18, and with a TBI. Patients will be excluded if on anticoagulation therapy, on other serotonergic agents, receiving antiplatelet therapy, pregnant or incarcerated, or diagnosed with any other disorders affecting bleeding risk. Primary outcome of the study is to determine whether the incidence of hemorrhage in TBI patients admitted is increased with SSRI exposure. Secondary outcomes will include time to stable head CT, mortality, and discharge dispositions.

RESULTS: Multiple descriptive statistics were used to analyze the data collection such as mean, median, and standard deviation. The primary outcome between hemorrhage association and serotonin exposure was shown to have no correlation between either group. Secondary outcomes showed these following differences (Serotonergic group n=10 versus no serotonergic group n=30): hours to stable head CT 8 vs. 12 hours, mortality 0% vs. 27%, and discharge dispositions 40% rehab vs. 10% as the majority. A chi squared test determined that the difference in types of serotonergic agents in the study was not statistically significant with a p value = 0.207. The averages in lab values between both groups were not clinically significant and appear almost equivocal between both groups.

CONCLUSIONS: Overall, the trauma population has its limitations to data collection along with the exclusion criteria for the study decreased the patient sample size significantly. There were limitations in this study that could have skewed the data to favor the serotonergic group due to the small sample size. The trauma TBI population can be difficult to assess especially when certain health information is unable to be obtained. There is limited data prior to this study and more studies to come are needed to ensure a definite conclusion to be drawn. In conclusion, there appears to be no definite association between serotonergic agents and bleed risk.

10:10am – 10:25am F **Assessment of antimicrobial prescribing appropriateness at discharge from the emergency department** Athena D

Presenters: Gabby Hill

TITLE: Assessment of antimicrobial prescribing appropriateness at discharge from the emergency department

AUTHORS: Gabby Hill; Robin Fischer; Lauren Freeman

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Outpatient antimicrobials accounted for 211.1 million prescriptions in 2021 including 10.7 million (5.1%) from emergency medicine providers. Many hospitals have established antimicrobial stewardship programs, but most efforts are focused on inpatient antimicrobial utilization. Proposed interventions for emergency department (ED) antimicrobial stewardship include culture follow-up, formulary restrictions, pharmacist initiatives, order sets, institutional guidances, and ED specific antibiograms. These evidence-based approaches can safely decrease antimicrobial use, rates of antimicrobial resistance, medical costs, hospital length of stay, and adverse effects. The purpose of this evaluation is to assess the appropriateness of antimicrobial prescribing at discharge from the ED for urinary tract infection (UTI), cellulitis, and bacterial pneumonia.

METHODOLOGY: This is a retrospective, single-center, cross-sectional study of adults discharged from the ED with an antimicrobial prescription(s) for an electronic diagnosis grouper coded diagnosis of UTI, cellulitis, or bacterial pneumonia between January and August 2023. Patients were excluded if they had an immunocompromising condition(s), concomitant systemic infection(s), catheter-associated UTI, or recurrent infection(s).

RESULTS: A total of 165 patients were included. Most patients were treated for urinary tract infection (71.5%) followed by cellulitis (21.2%), then bacterial pneumonia (7.3%). Overall antimicrobial appropriateness was 18.8% based on current national and local guideline recommendations of agent, dose, and/or duration. Beta-lactams represented the largest class of antimicrobials prescribed (61.2%). Antimicrobials were dosed appropriately in 77% of cases with antimicrobial underdosing due to indication being the largest area for optimization. Median duration of antimicrobials was 7 days. Patients were eligible for a shorter duration of therapy in 110 cases (66.7%). Forty-four patients (37.3%) were classified as treatment failures of which only 8 (18.2%) received appropriate therapy. There were no reported cases of Clostridioides difficile infections (CDI) that required treatment in the 30 days following ED discharge. Pharmacists documented review of 31/61 (50.8%) positive cultures per the established institutional ED culture follow-up policy and made interventions on 10 (32%).

CONCLUSIONS: Most patients discharged from the ED with antimicrobials for select indications have the opportunity for improvement in antimicrobial prescribing based on agent, dose, and duration. Extended treatment duration was the most common area for refinement. Few patients that experienced treatment failure had an optimal antimicrobial regimen prescribed. Adverse effects, specifically rates of CDI, were not increased. Proposed interventions to enhance antimicrobial prescribing at discharge include development of institutional guidances, implementation of order sets, and increased utilization of pharmacists in the ED.

10:10am – 10:25am F **Evaluating Alignment of Trough-Only Kinetic Dosing of Vancomycin With AUC Dosing** Athena C

Presenters: Alexa Allen

TITLE: Evaluating Alignment of Trough-Only Kinetic Dosing of Vancomycin With AUC Dosing

AUTHORS: Alexa Allen

OBJECTIVE: By the end of this presentation viewers will understand common trough targets and their correlation to AUC values in a specific population.

SELF ASSESSMENT QUESTION: A patient has a vancomycin trough of 16mg/L that correlates to an AUC of 475 (assuming a MIC of 1mg/L). Is this an appropriate level based on the new guidelines?

BACKGROUND: Vancomycin is a glycopeptide antibiotic that is commonly used to treat methicillin-resistant Staphylococcus aureus MRSA infections. In 2020 a revised consensus guideline for vancomycin was published by American Society of Health-System Pharmacists, the Infectious Diseases Society of America, the Pediatric Infectious Diseases Society, and the Society of Infectious Diseases Pharmacists stating “In patients with suspected or definitive serious MRSA infections, an individualized target of the AUC/MICBMD ratio of 400 to 600 (assuming a vancomycin MICBMD of 1 mg/L) should be advocated to achieve clinical efficacy while improving patient safety.” The 2009 guidelines trough only monitoring with a target of 15-20mg/L is now no longer recommended based of nephrotoxicity and efficacy.BVAHCS currently uses only trough-based dosing, which is not currently recommended. Within our VISIN, pharmacy departments are using an online calculator designed with the VA in mind to dose vancomycin. The purpose of this project is to evaluate how current VA trough-only kinetic dosing aligns with estimated AUC based dosing from the AUC dosing calculator.

METHODOLOGY: The project will consist of a retrospective observational chart review conducted by reviewing electronic medical records and collecting data on a specific data collection form. The data collected will be from 2020 to 2023. BVAHCS veteran will be included if they are 18-80 years old, normal renal function (estimated creatinine clearance above 60mL/min), and monitored solely via trough levels, and received vancomycin treatment for confirmed or suspected Gram-positive infections. For this study veterans will be excluded if there are on hemodialysis, peritoneal dialysis, or have acute kidney injury at admission, or on short courses of vancomycin without trough levels. Criteria for alignment includes the ranges of trough values (10-20) and the range of AUC outcomes (400-600) that are recognized as goals from the updated guidelines.

RESULTS: A total of 492 patients were screened for eligibility and 159 patients met inclusion criteria. On average, patients were 62 years old with a baseline SCr of 0.84mg/dL, and majority were male (96.23%). When empirically prescribed vancomycin, 44 patients had a goal trough of 10-15mg/L and 115 patients had a goal trough of 15-20mg/L. In the 10-15mg/L group, 22 patients (50%) had an AUC between 400-600 that correlated to an average trough of 13.85mg/L. In the 15-20mg/L group, 62 patients (53.9%) had an AUC between 400-600 that correlated with an average trough of 12.6mg/L. Other observations included the average length of stay was 12.8 days and average length of treatment was 5.1 days. Two adverse events occurred, and it was documented both had a rash form after vancomycin was given. A total of 68 patients were discharged on oral antibiotics. Overall, 84 patients fell within an AUC 400-600 with an average trough of 12.98mg/L.

CONCLUSIONS: The AUC dosing online calculator is an appropriate tool to utilize when dosing and monitoring vancomycin. Also, appropriate to utilize AUC goals when patients have serious MRSA infections. Based on the findings of this project it may be appropriate to have more conservative trough goals. Limitations of this study include small sample size, calculated estimate of AUC and observational data collection. A study that assesses clinical outcomes is warranted to further evaluate these findings.

10:10am – 10:25am T **A Pre/Post Implementation Study: The Addition of Phenobarbital to the Alcohol Withdrawal Protocol** Athena B

Presenters: Caitlin Casper

TITLE: A Pre/Post Implementation Study: The Addition of Phenobarbital to the Alcohol Withdrawal Protocol

AUTHORS: Caitlin Casper, Cristy Gaddy, Sophia Braun, and Jennifer Parker

OBJECTIVE: To assess the clinical effect of phenobarbital use for alcohol withdrawal syndrome.

SELF ASSESSMENT QUESTION:What effect did phenobarbital have on average length of stay for patients with a primary diagnosis of alcohol withdrawal syndrome?

BACKGROUND: Alcohol withdrawal syndrome (AWS) is a set of symptoms that occur when an individual who is dependent on alcohol suddenly stops or reduces their alcohol consumption. Chronic alcohol use can lead to downregulation of GABA, an inhibitory neurotransmitter that decreases neuronal activity, and upregulation of NMDA, an excitatory neurotransmitter that increases neuronal activity, to compensate for the presence of alcohol. When alcohol consumption is abruptly stopped or significantly decreased, an increase in excitatory neuronal activity causes AWS. The mainstay treatment for AWS is benzodiazepines (BZDs), however they are not without their own adverse effects. Recent studies have evaluated other agents for AWS, specifically, phenobarbital (PH). Phenobarbital is a barbiturate with a long half-life which exhibits inhibitory effects on GABA like BZDs and inhibits the excitatory effects of NDMA receptors as well. This dual mechanism of action has led researchers to suggest PH would be a better agent for treating AWS and preliminary studies have shown promising results. In December of 2022, Northeast Georgia Health System (NGHS) approved the addition of phenobarbital to the alcohol withdrawal CIWA order set as a treatment option for AWS. The purpose of this implementation was to decrease overall length of stay, the need for intensive care unit (ICU) admission, and the need for additional supportive care, such as mechanical ventilation, and adjunctive medication.

METHODOLOGY: This pre/post-implementation retrospective study included patients admitted with alcohol withdrawal and an alcohol withdrawal CIWA order set ordered between January 1, 2023 – November 30, 2023, compared to equivalent data from January 1, 2022 – November 30, 2022. The primary endpoint is the hospital length of stay. The secondary endpoints will be the need for ICU admission, use of adjunctive agents, CIWA score 24 hours after phenobarbital dose, and need for mechanical ventilation. Data points to be collected include the following: patient demographics including age, sex, race, and BMI, initial CIWA-Ar score and CIWA score at least 24 hours after admission, comorbidities, Charlson Comorbidity Index (CCI), the need for ICU admission, the need for mechanical ventilation, the overall length of stay, if applicable, the phenobarbital loading dose received in milligrams per kilograms, and the need for adjunctive therapy with valproate, dexmedetomidine, midazolam, ketamine and/or propofol. Data was analyzed using descriptive and inferential statistics.

RESULTS: Average length of stay was significantly increased in the post-implementation group and use adjunctive agents was also significantly increased in this group

CONCLUSIONS: TBD

10:10am – 10:25am A **Impact of Pharmacist-Driven Medication Review Post-Discharge on Hospital Readmission Rates** Athena J

Presenters: Emma Smith

TITLE: Impact of Pharmacist-Driven Medication Review Post-Discharge on Hospital Readmission Rates
AUTHORS: Emma Smith, Drew Kessell
OBJECTIVE:

1. Discuss the benefits of pharmacist review of medications at hospital discharge
2. Determine important clinical outcomes of discharge medication review
3. Identify opportunities for future research and ways to expand pharmacy services

SELF ASSESSMENT QUESTION: True or False: Pharmacist review of medications post-hospital discharge decreased the overall rate of 30-day hospital readmissions.
BACKGROUND: This study aims to determine whether a difference exists in 30-day hospital readmissions after pharmacist review of medications post-discharge.
METHODOLOGY: This quasi-experimental study was conducted over a year (6 months in both pre-implementation and post-implementation groups) at FirstHealth Moore Regional Hospital and two of its associated Family Medicine and Primary Care Clinics. Discharged patients seeking primary care at either clinic will be studied. In the pre-intervention group, patients fitting the inclusion criteria (age over 18 years old, nonpregnant, not discharged from behavioral health or to hospice services, discharged from FirstHealth Moore Regional Hospital) will be assessed based on normal transitions of care processes. In the post-intervention group, a pharmacist will review the patient's medications within 72 hours of discharge. During this medication review, the prior-to-admission medication list will be compared with the discharge medication list to identify any opportunities to optimize the medication therapy. Additionally, interventions will be communicated to the primary care provider and documentation will occur on the type of intervention: needs therapy, unnecessary therapy, dose too high, dose too low, inappropriate route, inappropriate frequency, duplicate therapy, drug interaction, or other. The primary outcome studied is 30-day hospital readmission rates. Secondary outcomes include 60-day hospital readmission rates and time to readmission.
RESULTS: A total of 352 patients were included in this study (170 patients in the pre-intervention group and 182 patients in the post-intervention group). Notable baseline characteristics include more previous hospitalizations in the past 30 days for the pre-intervention group (25.3% vs 14%, $p<0.00001$), more hospitalizations in the past year for the post-intervention group (51.6% vs 38.2%, $p<0.01$), and more medications at hospital discharge in the post-intervention group (13 vs 3, $p<0.00001$). The 30-day hospital readmission rate decreased by 4.3% (23.5% pre-intervention vs 19.2% post-intervention, $p = 0.33$). The 60-day hospital readmission rate decreased by 3% (29.4% pre-intervention vs 26.4% post-intervention, $p = 0.53$) and the time to hospital readmission was one day sooner in the post-intervention group (20 vs 19 days respectively, $p = 0.94$). The most common intervention made was 'needs therapy', often due to medications not being restarted at hospital discharge.
CONCLUSIONS: In this study, pharmacist review of discharge medication lists showed a decrease in 30-day hospital readmission rates and 60-day hospital readmission rates. Lack of statistical significance in the primary and secondary outcomes may be contributed to the differences in baseline characteristics, short follow-up period based on the interventions made, and the study timeline of the post-intervention period occurring during respiratory illness season. Despite this, these results show the benefit of pharmacist assistance during the transitions of care process. Further steps should be taken to create a role for pharmacists during the discharge process.

10:30am – 10:45am C **Impact of a Pharmacist-Led Heart Failure Therapy Optimization Program on Patient Outcomes** Parthenon 2

Presenters: Zil Tyler

TITLE: Impact of a Pharmacist-Led Heart Failure Therapy Optimization Program on Patient Outcomes

AUTHORS: Zil Tyler, Jae Yook, Reagan Wilson, Marianne Ray, Hilary Seagraves, Don Tyson

OBJECTIVE: To evaluate the efficacy of a standardized pharmacist-led heart failure with reduced ejection fraction (HFrEF) therapy optimization program as determined by 30-day heart failure readmission rates in a community hospital.

SELF ASSESSMENT QUESTION: True/False: Though not statistically significant, pharmacist interventions led to a reduction in 30-day HF readmission rate and future studies should be done to further analyze this.

BACKGROUND: The recent heart failure guidelines recommend optimization of guideline-directed medical therapy (GDMT) in patients with heart failure with reduced ejection fraction (HFrEF) during hospitalizations. Additionally, studies have consistently proven the efficacy of GDMT in reducing morbidity and mortality. Although the current practice of pharmacists within our institution is to evaluate HFrEF therapy regimens and make appropriate recommendations, this process is not standardized among pharmacists and often lacks proper documentation. The purpose of this study is to develop, implement, and evaluate a standardized pharmacist-led therapy optimization program based on GDMT for patients with HFrEF and to evaluate its effect on patient outcomes.

METHODOLOGY: This study was an IRB exempt, single-center, pre-post interventional study of adult patients admitted with HFrEF as a primary diagnosis. The pre-intervention group included 100 randomly selected patients admitted between January 1, 2023 and June 30, 2023. Post-intervention data was collected after implementation of this program from December 1, 2023 to February 29, 2024. A pharmacist guidance document was created based on primary literature and current guidelines to standardize pharmacist recommendations. Pharmacist interventions included medication initiation/discontinuation, dose titration, patient education, recommendation for cardiology consultation, and referral to our institution’s pharmacist-led outpatient medication management clinic (MMC). Another portion of this study was to refine the current referral process from a PAR-affiliated cardiologist office to the MMC. Although this is not a new process, there has been steady decline in the number of referred patients due to an inefficient referral process. During this study, an inpatient pharmacist sent patient information to the cardiologist office for possible referral to the MMC. The primary outcome was the number of patients readmitted for heart failure within 30 days of discharge. Secondary outcomes included 30-day all-cause readmission rate, percentage of patients on each GDMT drug class, and percentage of patients educated prior to discharge. Additional secondary outcomes specific to the post-intervention group were acceptance rate of pharmacist interventions, number of referrals to the MMC, and scheduled referral appointments. Continuous data was analyzed using the Mann-Whitney U test, and categorical data was analyzed using the Chi-Squared test.

RESULTS: A total of 135 patients were included: 100 in the pre-intervention group and 35 in the post-intervention group. Baseline characteristics were similar in both groups. The 30-day HF readmission rate showed no significant difference between the groups (post-intervention 3 [8.6%] vs pre-intervention 14 [14.0%], p=0.405). No significant differences were found between the groups in 30-day all cause readmission rate (post-intervention 7 [20%] vs pre-intervention 26 [26.0%], p=0.477), percentage of patients educated prior to (post-intervention 4

[11.4%] vs pre-intervention 21 [21.0%], p=0.180), and percentage of patients discharged on each GDMT except for mineralocorticoid receptor antagonists (MRA). A significantly higher percentage of patients were discharged on an MRA in the post-intervention group (post-intervention 17 [48.6%] vs pre-intervention 25 [25%], p=0.030). For the post-intervention group only, there was a total of 34 pharmacist interventions made with an acceptance rate of 41.2%. The highest accepted interventions were referrals to the MMC (57.1%) or initiation of GDMT (35.7%). Although no significant association was observed between pharmacist interventions and 30-day HF readmission rate (OR 0.576, 95% CI 0.155-2.137), renin-angiotensin-aldosterone system inhibitors upon discharge predicted an increased risk of 30-day HF readmission rate (OR 4.44, 95% CI 1.31-14.838).

CONCLUSIONS: There was no significant difference in the 30-day hospital readmission rate between the pre- and post-intervention groups. However, pharmacist interventions led to significantly more patients being discharged on an MRA in the post-intervention group. This metric was identified as one of areas requiring improvement prior to the study. Continuation of the study is desired to further evaluate the standardized pharmacist-led therapy optimization program for patients with HFrEF.

10:30am – 10:45am R **Efficacy of an aPTT Ratio versus an aPTT Seconds-based Monitoring Protocol for Heparin Infusions** Olympia 1

Presenters: Fevil Patel

TITLE: Efficacy of an aPTT Ratio versus an aPTT Seconds-based Monitoring Protocol for Heparin Infusions

AUTHORS: Fevil Patel, Alexas Polk, Mary Sheffield, Katherine Miller

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify differences between key outcomes for two aPTT monitoring protocols used at UNCH-SE.

SELF ASSESSMENT QUESTION: True or False: There is a clinically significant difference between the two monitoring protocols for continuous infusion heparin management at UNCH-SE.

BACKGROUND: Assess key outcomes between two different heparin monitoring protocols at UNC Health Southeastern (UNCHSE). Historically, inpatient pharmacists at UNCHSE utilized a heparin dosing protocol based on activated partial thromboplastin (aPTT) ratio. However, this protocol was updated to utilize aPTT in seconds as opposed to an aPTT ratio after the electronic medical record no longer reported aPTT ratios, causing pharmacists to manually calculate this value. The new protocol was implemented on November 6, 2023.

METHODOLOGY: Retrospective chart review was performed on adult patients admitted from August 1, 2023 to January 31, 2024 who received unfractionated heparin (UFH) continuous infusions for acute coronary syndrome (ACS) and venous thromboembolism (VTE). Patients were divided into two groups based on the use of aPTT ratio versus seconds-based monitoring protocols for management of their UFH infusions. Patients were included if they were at least eighteen years of age, on a continuous UFH infusion for ACS or VTE, and had at least one aPTT lab drawn after starting the UFH infusion. Patients were excluded if they had a contraindication to heparin including heparin-induced thrombocytopenia (HIT) or received a thrombolytic during the admission. The primary objective evaluated difference in time to first therapeutic aPTT lab value. Secondary objectives evaluated average length of stay, duration of heparin infusion, percentage of time in therapeutic range, number of adjustments prior to first therapeutic aPTT, all-cause readmission, recurrent VTE, and mortality at 30 days. Safety objectives compared rates of major and minor bleeds and protamine use.

RESULTS: A total of 150 patients were included in this study, with 75 in each of the two study groups. The primary outcome of time to first therapeutic aPTT level was statistically significant between the two study groups [aPTT ratio 10.40 ± 1.24 hours vs aPTT seconds 12.22 ± 1.64 hours (p= 0.04)]. Secondary outcomes included average duration of heparin infusion [aPTT ratio 2.18 ± 0.42 days vs aPTT seconds 2.05 ± 0.34 days (p= 0.32)], all-cause readmission at 30 days [aPTT ratio 24 (32%) vs aPTT seconds 19 (25.3%) (p= 0.19)], recurrent VTE at 30 days [aPTT ratio 0 (0%) vs aPTT seconds 1 (1.3%) (p= 0.49)], and all-cause mortality at 30 day [aPTT ratio 5 (6.7%) vs aPTT seconds 7 (9.3%) (p= 0.38)]. None of these secondary outcomes were statistically significant. The secondary outcome of average hospital length of stay was statistically significant between the two groups [aPTT ratio 5.37 ± 0.71 days vs aPTT seconds 6.99 ± 0.98 days (p= 0.005)]. Safety outcomes included major bleeds [aPTT ratio 0 (0%) vs aPTT seconds 1 (1.3%) (p= 0.49)] and minor bleeds [aPTT ratio 0 (0%) vs aPTT seconds 1 (1.3%) (p= 0.49)], which were not statistically significant between the two groups. There was no protamine use in either group.

CONCLUSIONS: There was a statistically significant difference found in time to first therapeutic aPTT favoring the aPTT ratio group over the aPTT seconds group at UNCH-SE, however this did not correlate to clinical significance.

10:30am – 10:45am

Prioritizing Change: Evaluation of a Pharmacy Change Management Prioritization Matrix

Athena I

Presenters: Scott Gourley

TITLE: Prioritizing Change: Evaluation of a Pharmacy Change Management Prioritization Matrix

AUTHORS: Scott Gourley, Derek Rhodes, Kyle Porter, Tanya Ezekiel, Laura Holden, Kemper Booth, Cassidy Kemp

OBJECTIVE: Characterize pharmacy change requests following implementation of a prioritization matrix.

SELF ASSESSMENT QUESTION: What are the components of RICE that are implicated in this pharmacy change management tool?

BACKGROUND: Change requests, optimization, and continuous improvement efforts are constant within health-system pharmacy. Prioritization of requests is essential to ensure limited health-system resources are directed to efforts that will contribute to department and organization goals. Development of a prioritization matrix is a potentially powerful tool for pharmacy change management teams to prioritize requests. The RICE score is a method used to assess and prioritize tasks or issues based on their impact, feasibility, and ease of implementation. It stands for Reach, Impact, Confidence, and Effort, providing a structured approach to decision-making and resource allocation.

METHODOLOGY: This is a single health system pre- and post-implementation study. An updated change request intake form based on a localized RICE scoring system was developed to assist with objective characterization of change requests and assist with prioritization. Change requests were categorized as medication safety, value creation, or general requests. Within each category, a scoring system was developed to attribute a value to reach, impact, and confidence. Effort was determined by internal change management team members based on estimated time required to implement.

Pre-implementation data utilized in analysis was obtained from August 2023 change management requests. Implementation of the revised intake form took place on December 2, 2023. Post-implementation data was obtained from January 2024. The primary outcome is the difference in the median RICE scores based on time of analysis. Secondary outcomes include the characterization RICE scores, including quartile range assessment, number of requests by category, median score by request type.

RESULTS: TBD

CONCLUSIONS: TBD

10:30am – 10:45am M **Impact of 340B pricing program on medication assistance program enrollment rates** Athena G

Presenters: Faatihah Meunier

TITLE: Impact of 340B pricing program on medication assistance program enrollment rates

AUTHORS: Faatihah Meunier, Taylor Wells, Julia McLellan

OBJECTIVE: Impact of 340B pricing program on medication assistance program enrollment rates

SELF ASSESSMENT QUESTION:

BACKGROUND: The risk of 30-day readmission among indigent patients is often attributed to the economic barrier associated with prescription drug cost-sharing at discharge. Cost-reducing strategies are associated with increased acute care visits and mortality. To optimize patient care and reduce hospital readmissions, Cape Fear Valley Health System's outpatient pharmacy, Valley Pharmacy, initiated the Rx Coordination of Care Plus Plan (Rx COC Plus Plan). Prior to the development of the Rx COC Plus Plan, medications required approval for grant funding, or through charging patients the cash price for their prescriptions. Upon grant funding approval, patients received only a 7-day supply of medications at discharge. The Rx COC Plus Plan utilizes 340B drug pricing to provide medications at no charge to patients. Medication cost is absorbed by the pharmacy; however, this cost is minimalized due to 340B drug pricing. Uninsured patients are eligible to receive a 30-day supply of medication free of charge from a limited formulary at Valley Pharmacy under the Rx COC Plus Plan. Since the introduction of the Rx COC Plus Plan, a report has been created to identify patients utilizing the program so that they can be contacted by the Cumberland County Medication Assistance Program (CCMAP) to initiate enrollment to provide continuity of care. The purpose of this study is to evaluate how the implementation of the Rx COC Plus Plan impacts medication assistance program enrollment rates.

METHODOLOGY: This is a retrospective, single-center, IRB reviewed and exempt, pre- and post-intervention chart review study. The study ranges from January 1, 2021, to December 31, 2022, and was conducted at a North Carolina 915-bed not-for-profit acute care hospital. Patients aged ≥ 18 years were included if they met the eligibility criteria for the Rx COC Plus Plan, which includes being uninsured, receiving a prescription for a medication listed in the Rx COC Plus Plan's 340B medication pricing program formulary, and obtaining prescriptions from Valley Pharmacy. Patients were excluded if they had missing data for the primary endpoint. The primary outcome was to compare medication assistance program enrollment rates before and after the implementation of the Rx COC Plus Plan's 340B medication pricing program.

RESULTS: Data analysis included 601 discharges for 510 patients over both years. Patients in the study were an average of 49 years of age, more than half were male (n=310, 57%), and primarily African American (n=299, 55%). The primary objective showed no statistically significant difference in medication assistance program enrollment rates before and after program implementation (24.31% in 2021 and 21.19% in 2022, p-value of 0.3981). Analysis of 30-day readmission rates demonstrated no significant difference between 2021 (15.91%) and 2022 (11.24%), with a p-value of 0.4476. However, 90-day readmission rates exhibited a significant trend, with a substantial increase from 20.45% in 2021 to 37.08% in 2022, nearing statistical significance (p = 0.0523) and indicating a clinically meaningful difference.

CONCLUSIONS: Despite a numerical increase in referrals to CCMAP (420 vs.181), there was not a statistically significant change in enrollment or readmission rates. Limitations to the study include its retrospective nature and challenges in the CCMAP enrollment process, such as difficulty in contacting patients and limited support personnel. To address these limitations moving forward, enhancements in workflow, such as initiating enrollment prior to discharge through bedside services, are imperative. The clinically significant increase in 90-day readmissions seen in this study may be attributed to a significant decrease in admissions for chronic conditions in 2021 due to the COVID-19 pandemic, followed by an influx of hospitalizations for non-COVID related

conditions in 2022. Despite the results of this study, the implementation of the new 340B pricing program contributed to an increase in medication access for uninsured patients at discharge and is vital to patient care.

10:30am – 10:45am R **Impact of a Pharamcy-led Titration Protocol on Midodrine Continuation at ICU and Hospital Discharge** Olympia 2

Presenters: McKenzie Hodges

TITLE: IMPACT OF A PHARMACY-LED TITRATION PROTOCOL ON MIDODRINE CONTINUATION AT ICU AND HOSPITAL DISCHARGE

AUTHORS: McKenzie J. Hodges, Joshua Chestnutt, Corinne Murphy, Aayush Patel, Brooke Landry, John Ethan Young

OBJECTIVE: Explain the impact of a pharmacist-led midodrine titration protocol on continuation rates post-ICU

SELF ASSESSMENT QUESTION: What is risk of continuing midodrine post-ICU discharge? Hypertension

BACKGROUND: Midodrine is an oral alpha-1 agonist that increases blood pressure and is used in the critically ill patient population to aid in weaning continuous intravenous vasoactive agents to expedite transfer out of the intensive care unit. When used for this indication, midodrine is meant to be continued only while in the ICU or hospital because of potential adverse effects without proper monitoring; however, there have been increasing concerns for unintended continuation once the patient leaves the ICU and hospital. There have been ongoing efforts to lower continuation rates through daily chart review by pharmacists as well as the use of a pharmacist-led titration protocol to attempt to wean midodrine off prior to hospital discharge. The purpose of this study is to assess the impact of a pharmacist-led titration protocol on discontinuation rates at ICU and hospital discharge.

METHODOLOGY: This was a single-center pre-post retrospective observational study in the setting of adult ICUs and general medical floors at a tertiary care community teaching hospital. Chart reviews were conducted on patients who received scheduled ICU-initiated midodrine for adjunct therapy with continuous IV vasopressors. Patients were excluded if they had previously received midodrine (outside of ICU or as a home medication), or if midodrine was used for non-vasopressor weaning indications. The primary objective of this study was to evaluate the difference in midodrine discontinuation rates at ICU and hospital discharge pre- and post-implementation of a pharmacist-led titration protocol. The secondary objectives were to compare the incidence of antihypertensive therapy initiation and determine the incidence of vasopressor re-initiation while on midodrine pre- and post-implementation of the pharmacist-led titration protocol. All outcomes were analyzed using Pearson’s chi-square test or Fisher’s exact test.

RESULTS: TBD

CONCLUSIONS: TBD

10:30am – 10:45am R **The Impact of Midodrine on Vasopressor Duration In Septic Shock Intensive Care Unit Patients** Parthenon 1

Presenters: Anna Norris

TITLE: The Impact of Midodrine on Vasopressor Duration In Septic Shock Intensive Care Unit Patients

AUTHORS: Anna Norris, Amanda Guffey, Erik Turgeon

OBJECTIVE: Describe the effectiveness of titrated midodrine for shortening vasopressor duration

SELF ASSESSMENT QUESTION: Is titrated midodrine dosing effective in shortening vasopressor duration?

BACKGROUND: Sepsis and septic shock affects approximately 1.7 million adults in the United States each year – with mortality rates up to 40%. Vasopressors are often needed to maintain mean arterial pressure (MAP) greater than the goal of 65 mmHg through vasoconstriction. With serious side effects, such as arrhythmias and limb ischemia, ways to minimize vasopressor exposure have been previously studied. The outcome of these studies had conflicting results regarding midodrine usage for vasopressor weaning, along with gaps in finding the optimal dosing strategy for this indication. This study's purpose was to determine duration of vasopressors in patients receiving titrated midodrine dosing up to 40 mg three times daily, fixed midodrine dosing of 10 mg three times daily, or no midodrine administration in patients admitted to the ICU with septic shock; along with impacts on ICU or hospital length of stays and safety events, such as bradycardia.

METHODOLOGY: This is a single-center, pre- and post-intervention chart review approved by the Institutional Review Board. Eligible patients included adult inpatients with a diagnosis of septic shock in the ICU with hypotension (MAP less than 65) despite fluid resuscitation requiring vasopressor administration for at least 24 hours from April 2023 – June 2023 (pre-intervention) and September 2023 – February 2024 (post-intervention). The intervention was a midodrine titration order panel implemented to increase the dose of midodrine every 24 hours to a maximum of 40 mg three times daily. A midodrine weaning order panel was utilized once vasopressors were discontinued or patients reached individually tolerated doses based on clinician decision due to adverse events, such as bradycardia. Fixed midodrine dosing of 10 mg three times daily or no midodrine remained options throughout the study duration and patient treatment was determined through clinician preference. Education of study objective and midodrine titration panel was delivered to intensivists, ICU nursing staff, and pharmacy prior to implementation of intervention.

RESULTS: 75 patients were included in the IRB-approved study. Enrollment was as follows: 32 patients in the no midodrine group, 20 in the fixed dose midodrine group, and 23 in the titrated midodrine group. The mean vasopressor duration was 3.3 days (median 2 days), 5.9 days (median 3.5 days), and 4.8 days (median 5 days) for no midodrine, fixed dose midodrine, and titrated midodrine, respectively. Statistical significance was observed between the no midodrine group vs fixed dose ($p=0.010$) and no midodrine vs titrated midodrine ($p=<0.001$). There was no difference in hospital length of stay, but a statistically significant difference was observed in average ICU length of stay between no midodrine (5.2 days), fixed dose midodrine (9.5 days), and titrated midodrine (7.5 days) with ($p=0.008$). Bradycardia occurred in 52% of patients with titrated midodrine dosing, which lead to 4 discontinuations of midodrine. In the fixed dose midodrine group, bradycardia occurred in 35% patients with no subsequent discontinuations. No discontinuations of vasopressors due to bradycardia in the no midodrine group were observed. There was no difference in incidence of hypertension between the three groups.

CONCLUSIONS: Midodrine administration did not shorten vasopressor duration when compared to no midodrine administration. There was a higher rate of bradycardia in the titrated midodrine group leading to discontinuation. The impact of midodrine on hospital or ICU length of stay is uncertain. Limitations of this study were small sample size, selection bias based on physician preference, retrospective study design, and variations in timing of midodrine initiation. Future studies examining the impact of initial midodrine administration with initiation of vasopressors would be of interest.

10:30am – 10:45am F **Comparing Two-Dose 1500 mg Dalbavancin to Standard of Care in the Outpatient Treatment of Invasive Gram-Positive Infections** Athena C

Presenters: Rachel Friend

TITLE: Comparing Two-Dose 1500 mg Dalbavancin to Standard of Care in the Outpatient Treatment of Invasive Gram-Positive Infections

AUTHORS: Rachel Friend, Trey Willoughby, Elizabeth Covington, Sarah Grace Gunter

OBJECTIVE: To analyze the clinical success of two-dose 1500 mg dalbavancin (DBV) in the outpatient treatment of invasive Gram-positive infections compared to standard of care (SOC).

SELF ASSESSMENT QUESTION: What is the terminal half-life of dalbavancin?

BACKGROUND: Invasive Gram-positive infections commonly require continuation of intravenous (IV) antibiotics in the outpatient setting. For these situations, the standard of care includes antibiotics such as vancomycin or daptomycin. Dalbavancin has many benefits including a prolonged half-life and no requirement for central IV lines. There have been multiple studies assessing the effective use of dalbavancin for the treatment of invasive Gram-positive infections; however, the optimal dosing strategy has yet to be determined. The results of this study are expected to supplement current literature regarding clinical success with the use of dalbavancin for bacteremia and osteomyelitis.

METHODOLOGY: This retrospective chart review was approved by the Institutional Review Board. Up to 200 patients who received either two-dose dalbavancin or standard of care as outpatient treatment for osteomyelitis or bacteremia between July 1, 2019, and April 1, 2023, will be included in the analysis. The primary outcome is clinical success defined as no known clinical or microbiological evidence of recurring infection, and no additional antibiotic therapy required for the infection within 90 days from hospital discharge. Secondary outcomes include 90-day infection recurrence, additional antibiotic therapy within 90 days, 90-day infection-related readmission, 90-day all-cause mortality, treatment-emergent adverse reactions, infection-related emergency room visits, and the percentage of patients switched to oral antibiotics. Inclusion criteria include minimum age of 19 years and discharged from East Alabama Medical Center with orders for outpatient IV antibiotics (dalbavancin, vancomycin, or daptomycin) indicated by a diagnosis of osteomyelitis or bacteremia. Exclusion criteria include vulnerable populations and severe renal impairment defined as creatinine clearance ≤ 30 mL/min (per Cockcroft-Gault) or receiving hemodialysis or other renal replacement therapy. Data to be collected will include the following: demographic information, inpatient/outpatient antibiotics used, microbiology data, mortality, clinical progress notes, creatine phosphokinase, serum creatinine and adverse drug reactions. Between group comparisons will be performed using the Pearson Chi-square or Fisher’s exact test, as appropriate. Statistical tests will be performed using SPSS® statistics software or Microsoft Excel.

RESULTS: 64 patients met inclusion criteria within the standard of care group, and 28 patients met inclusion criteria within the dalbavancin group. 57 of the 64 participants in the standard of care group achieved the primary outcome compared to 22 of the 28 participants in the dalbavancin group. There was a statistically significant difference in the infection type with osteomyelitis being the majority of the dalbavancin group compared to bacteremia in the standard of care group ($p < 0.001$). The dalbavancin group did have a statistically significant higher median Charlson Comorbidity Index score ($p=0.038$). There was statistically significant less mean duration of inpatient antibiotics in the dalbavancin group compared to the standard of care group ($p= 0.049$). None of the secondary outcomes had any statistically significant results; however, the dalbavancin group did have more additional antibiotics within 90 days.

CONCLUSIONS: Of the 64 standard of care participants, 57 participants met the primary outcome (89%) compared to 22 of the 28 dalbavancin participants (79%). There was no statistical difference in the primary outcome likely due to the small sample size. The differences in baseline characteristics including 18% of the dalbavancin group not having any cultures limits the interpretation of this study. However, this is the first study to

evaluate the specific dosing regimen of 2-dose dalbavancin 1500 mg administered a week apart, and the similar outcomes between the two groups is promising. Future studies with larger sample populations are needed to further establish the role of dalbavancin in the treatment of Gram-positive invasive infections.

10:30am – 10:45am F **Comparison of IV vs IV with stepdown to PO antibiotics for Streptococcus and Enterococcus bacteremia** Athena D

Presenters: Kelsey Bouwman

TITLE: Comparison of IV vs IV with stepdown to PO antibiotics for Streptococcus and Enterococcus bacteremia

AUTHORS: K. Bouwman; J.W. Pierce; J. Emberger; A. Stang; A.M. Kipp; P.W. Vos; N.C. Nicolsen

OBJECTIVE: Compare clinical failure of IV vs PO-SD antibiotic treatment course for Streptococcus and Enterococcus BSI

SELF ASSESSMENT QUESTION: Your patient with non-severe Streptococcus BSI can be safely changed from IV to PO antibiotics after ~5 days. True or False

BACKGROUND: Historical approach to treating BSI was IV antibiotics for the entire duration. Several disadvantages to IV therapy include increased costs, catheter-associated complications, and increased hospital length of stay (LOS). Providers have now gained comfort with transition to oral therapy in BSI, with variability in agents chosen, doses selected, and length of therapy. Retrospective evidence indicates favorable outcomes with oral step-down (PO SD) therapy in uncomplicated Streptococcus BSI, but there are limited studies that have compared clinical outcomes for Enterococcus BSI.

METHODOLOGY: This was a multicenter, retrospective, cohort study. Adult, hospitalized patients who started active antibiotics within 48 hours of blood cultures positive for Streptococcus or Enterococcus from November 2019 to October 2023 were identified for screening. Patients were excluded if they had complicated infections, persistent bacteremia, obvious lack of source control, polymicrobial bacteremia, received less than 5 days of active antibiotics, died before completing therapy, transferred facilities, started prophylactic antibiotics after treatment, or switched back to IV therapy for NPO status. Patients who completed IV therapy were compared with patients who transitioned from IV to oral therapy after at least 3 days but no more than 7 days of IV therapy. The primary outcome was clinical failure which was a composite of 90-day all-cause mortality and 90-day recurrent bacteremia due to the same organism. Secondary outcomes including LOS were also evaluated. Chi square test was used for categorical variables and t-test for continuous variables. The intention-to-treat analysis treated patients with unknown outcomes as failures. The per protocol analysis excluded them.

RESULTS: 429 patients were included in the study, 225 in the IV group and 204 in the PO SD group. Baseline characteristics were comparable, however patients in the IV group had more comorbidities and were more likely to be on vasopressors. The IV group had a higher risk of clinical failure in the per protocol analysis (17.5% vs 8.8%, p=0.01), and this was driven by a 90-day mortality difference (12.4% vs 5.39%, p=0.02). The intention-to-treat analysis found no difference in clinical failure (26.7% vs 23.5%, p=0.45). The mean difference between groups for LOS was 9.2 (95% CI 7.5-10.9, p<0.001) with shorter LOS in the PO SD group.

CONCLUSIONS: Oral step-down antibiotics did not increase risk of clinical failure compared to a full course of IV antibiotics for uncomplicated Streptococcus and Enterococcus BSI. Patients with more comorbidities or who required vasopressors were less likely to be switched to oral therapy.

10:30am – 10:45am F **Evaluation of Antimicrobial Overprescribing in Asymptomatic Bacteriuria** Athena B

Presenters: Alexandra M Higgins

TITLE: Evaluation of Antimicrobial Overprescribing in Asymptomatic Bacteriuria

AUTHORS: Alexandra Higgins

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Asymptomatic bacteriuria (ASB) is a common source of antibiotic over-prescribing and the inappropriate use of antimicrobial agents in hospitalized patients. The use of antibiotics in ASB is not routinely recommended and can lead to higher rates of resistance, adverse drug events, and secondary infection including C.difficile colitis. This study aims to evaluate outcomes of clinical pharmacist intervention on rates of inappropriate antimicrobial prescribing in ASB and help limit patient exposure to unnecessary treatment.

METHODOLOGY: Prior to beginning this study, it was submitted to HCA Healthcare's External Data Release Board for review and approval. This research is an interventional, retrospective study that was led at a small community hospital in a greater metropolitan area. This research consists of two phases: a pre-intervention phase and post-intervention phase. Rates of inappropriate antimicrobial prescribing in ASB were collected and analyzed prior to intervention and after intervention. This data was collected using a clinical surveillance platform that can identify diagnosis codes for antibiotics prescribed with an indication of "UTI Cystitis". Appropriateness of antimicrobial prescribing was determined by individual electronic health record review for signs and symptoms of infection. Two groups that stand to benefit from the treatment of ASB include pregnant women and patients undergoing urologic procedures with risk of mucosal injury; therefore, subjects that fall into either of these groups were excluded. The intervention portion of this study consisted of an educational in-service presentation to providers and other pertinent clinical staff surrounding the over-use of antibiotics in the setting of ASB.

RESULTS: TBD

CONCLUSIONS: TBD

10:30am – 10:45am E **Safety of Ibuprofen Compared to Opioids in Infants Aged 14 days to 6 months.** Athena H

Presenters: romaric awadjihe

TITLE: Safety of Ibuprofen Compared to Opioids in Infants Aged 14 days to 6 months.

AUTHORS: Romaric Awadjihe, Kristin Howell, Rachel Mathews, Hunter Collins

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Postoperative pain management in pediatrics is a primary concern for the multidisciplinary team.Current pain management consists of multimodal approach of acetaminopen, non-steroidal anti-inflammatory drugs (NSAIDs),and opioids. Ibuprofen is an NSAID that is currently withheld in infants under 6 months of age due to safety concerns of renal dysfunction and increased risk of bleeding. However, these clais have not been definitively proven in literature.Conversely, ibuprofen has proven to be safe and effective in premature and term neonates for treatment of patent ductus arterious (PDA).Despite the literature supporting the safety of ibuprofen in infants with PDA, opioids remain the mainstay of therapy for pain unrelieved by acetaminophen in infant younger than 6months of age. However, infant and neonates in particular face an elevated risk of central respiratory depression due to the use of opioids. This study aims to compare the safety profile of ibuprofen and opioids in infants 14 days to 6 months of age .

METHODOLOGY: This is a retrospective chart review within the Franciscan Missionaries of Our Lady Health System between January 2019 and November 2023. It includes patients who received ibuprofen or an opioid after 14 days of life to 6 months of age. Patients were excluded if they were younger than 14 days of age, older than 6 months of age or had documented kidney dysfunction or signs of acute bleeding at baseline .

RESULTS: From January 2019 to November 2023, 134 ibuprofen orders were identified accounting for 34 patients. Among those patients, 11 patients (32%) received ibuprofen after 14 days of life and 23 (67 %) patients met exclusion criteria. During this time, 153 opioids orders were identified, accounting for 47 patients. Of the 47 patients, 24 (51%) patients meet the inclusion criteria and received at least one dose of opioid, 17 (36%) patients did not meet inclusion criteria, and 6 patients had an order for an opioid but never received a dose.

CONCLUSIONS: Based on changes from baseline of serum creatinine, BUN, and urinary output, we conclude that, short term use of ibuprofen in infants 14 days to 6 months does not have clinically significant major impact on their kidney functions.

10:30am – 10:45am S **Evaluation of the Impact of Meds-to-Beds on Psychiatric Readmission Rates at a Rural Hospital** Athena A

Presenters: Kayla Piontek

TITLE: Evaluation of the Impact of Meds-to-Beds on Psychiatric Readmission Rates at a Rural Hospital

AUTHORS: Kayla Piontek, Abigayle Campbell

OBJECTIVE: To determine if readmission rates are positively impacted by providing a “meds-to-beds” service to psychiatric patients upon discharge from a rural medical hospital.

BACKGROUND: Medication inaccessibility largely influences non-adherence to treatment regimens, consequently leading to rehospitalization and poor outcomes. Literature suggests medication non-adherence as a significant contributor to psychiatric readmission rates. However, study conclusions have been variable, indicating the need for more data on interventions that may impact medication accessibility and consequently, increased readmission rates.

METHODOLOGY: This is a single center, retrospective, chart review used to evaluate psychiatric readmission rates in patients who are discharged with “meds-to-beds” compared to patients who do not receive this service. Electronic health records will be accessed to identify patients who are 18 years of age or older who were discharged from the Behavioral Health Center at Self Regional Healthcare between January 1, 2022 to December 31, 2022 that were home-destined and received at least one psychiatric medication via a “meds-to-beds” service upon discharge. Patients discharged to another mental health facility, rehabilitation program, or placement where medications will be supplied on-site will be excluded from this study. The primary endpoint will evaluate readmission rates at 90-days post-discharge. Secondary endpoints will evaluate readmission rates at 6 months after discharge, 1 year after discharge, and readmission rates within 90-days categorized by psychiatric disease state. Baseline demographics will be assessed, including patient age, sex, race, BMI, marital status, living situation, education, employment status, insurance coverage, and type of follow-up clinic (government vs. private).

RESULTS: Of the 112 patients included in the analysis, 49 patients were included in the psychiatric “meds-to-beds” group and 63 patients were included in the group that did not receive psychiatric “meds-to-beds.” Age, marital status, and living situations were similar between the two groups. Significant differences were found in the following characteristics: sex ($p=0.0054$), race ($p=0.0034$), education ($p=0.0330$), employment status ($p=0.0001$), and insurance coverage type ($p<0.0001$). Readmission rates were found to be similar between the psychiatric “meds-to-beds” vs no psychiatric “meds-to-beds” groups at 90-days, 6-months, and 1 year after discharge (2 vs 1, $p=0.5801$; 4 vs 2, $p=0.4014$; 8 vs 6, $p=0.2802$).

CONCLUSIONS: Among psychiatric patients discharged from the Behavioral Health Center at Self Regional Healthcare, there were no statistically significant differences in readmission rates at any time points assessed. However, there were many statistically significant differences found between the baseline characteristics of each group that may influence readmission rates, such as highest level of education and employment status.

11:00am – 11:15am M **Evaluation of Very High-Risk Patients of a Cardiovascular Risk Reduction Clinic vs Standard of Care** Athena G

Presenters: Kaitlyn Phillips

TITLE: Evaluation of Very High Risk Patients of aCardiovascular Risk Reduction Clinic vs Standard of Care

AUTHORS: Kaitlyn L. Phillips, PharmD, BCPS; Jeffrey A. Lewis, PharmD, BCPS, BCACP, CDCES

OBJECTIVE: Define benefits of an interdisciplinary lipid specialist team for cardiovascular risk reduction.

SELF ASSESSMENT QUESTION: Which best defines significant benefits of a lipid specialist team versus standard of care?

BACKGROUND: The American College of Cardiology currently recommends a low-density lipoprotein (LDL) goal of less than 55 milligrams per deciliter in patients with clinical atherosclerotic cardiovascular disease who are at very high risk of another cardiovascular event. Achieving this goal can be difficult despite the availability of newer pharmacologic agents in recent years. This practice houses a cardiovascular risk reduction clinic with a certified lipidologist and clinical pharmacist whose population was compared to the general cardiology population which is currently considered standard of care. This cross-sectional, retrospective study aimed to evaluate the proportion of patients of the cardiovascular risk reduction clinic versus general outpatient cardiology care who have achieved this LDL goal of less than 55 milligrams per deciliter.

METHODOLOGY: Patients were identified by the cardiovascular risk reduction clinic schedule and via atherosclerotic cardiovascular disease and major adverse cardiovascular event International Statistical Classification of Diseases 10th Revision (ICD-10) codes in their charts. Patient charts were assessed for demographic data, cardiovascular event history, cardiovascular risk factors, lipid panel values, and lipid pharmacotherapy. Patients seen in the cardiovascular risk reduction clinic were compared to patients seen by general cardiologists in 2023. Patients with limited life expectancy or no lipid panel after interventions were made were excluded. Continuous variables were evaluated using student t-tests while noncontinuous variables were evaluated using Chi-square analysis.

RESULTS: Patients were majority male (63%) and 63.7, 9 years old. Cardiovascular high-risk condition rates were all similar across the practices except for a higher history of ischemic stroke in general cardiology care (22 vs. 9 patients, P 0.04). Significantly more patients under general cardiology care were taking high-intensity statins (38 vs. 20 patients, P 0.004), while significantly more patients of the cardiovascular risk reduction clinic were not taking any statin (30 vs. 7 patients, P less than 0.001). Significantly more cardiovascular risk reduction patients met their LDL goal of less than 55 milligrams per deciliter vs. general cardiology standard of care (31 vs. 17 patients, P 0.004). Cardiovascular risk reduction patients had significantly higher triglyceride levels (188.5 vs. 151.2 milligrams per deciliter, P 0.046) and lower LDL levels (62.8 vs. 86.7 milligrams per deciliter, P 0.007).

CONCLUSIONS: Cardiovascular risk reduction clinic patients had significantly higher triglyceride levels and significantly lower rates of statin usage which reflects their medical complexity that warrants referral to the clinic. The cardiovascular risk reduction clinic helped significantly more patients reach their current guideline-based LDL goals than standard of care. This is likely due to recent guideline awareness and implementation paired with significantly higher rates of nonstatin lipid-lowering pharmacotherapy prescribing along with the general cardiology care providers delegating lipid management to primary care providers.

11:00am – 11:15am T **Investigating Implementation of mMINDs Scale for Alcohol Withdrawal at a Community Hospital System** Athena B

Presenters: Gyunash Akibova

TITLE: Investigating Implementation of mMINDs Scale for Alcohol Withdrawal at a Community Hospital System

AUTHORS: Gyunash Akibova, Michael Saxon

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Approximately 10.6% of Americans aged 12 years and older had Alcohol Use Disorder (AUD) in 2021, and nearly half of those patients experienced alcohol withdrawal symptoms. Alcohol withdrawal syndromes (AWS) pose significant challenges in clinical management, necessitating accurate assessment tools. The Clinical Institute Withdrawal Assessment for Alcohol, Revised (CIWA-Ar) is one of the most widely utilized assessment tools but is subjective in nature. This study aims to retrospectively evaluate the CIWA-Ar used at Northside, and explore the potential implementation of the modified Minnesota Detoxification Scale (mMINDS) in alcohol withdrawal management, with a focus on medication utilization and patient outcomes.

METHODOLOGY: A retrospective chart review was performed on patients at least 18 years of age with Mild-Moderate or Severe AUD protocols ordered at Northside Hospital campuses from October 2022 to October 2023. Northside's Severe AUD protocol requires the patient to transfer to the ICU. Based on current CIWA-Ar protocols, data was analyzed for trends in phenobarbital, lorazepam, and dexmedetomidine utilization, length of hospitalization and ICU length of stay (LOS). Initial mMINDS scores were retrospectively calculated for these patients to compare what the expected lorazepam doses within the first 24 hours would be according to a proposed mMINDS AUD protocol.

RESULTS: Preliminary results of the 100 eligible patients show lower average lorazepam exposure in the estimated mMINDS group compared to the documented CIWA-Ar (4.0 mg vs. 10.2 mg) within the first 24 hours. The average hospital stay was 5.8 days and 14% (14/100) required transfer to ICU. These ICU patients had an average ICU LOS of 4.2 days and average total hospital stay of 14.2 days. 71% (10/14) of ICU admits required a dexmedetomidine drip with an average total dose of 52.5 mcg/kg and average duration of 2.4 days. The initial lorazepam exposure for patients requiring transfer to the ICU averaged 8.5 mg within the first 24 hours of admission. Other benzodiazepines utilized to manage patients on AUD protocols included midazolam, diazepam and chlordiazepoxide.

CONCLUSIONS: This study highlights the potential benefits of incorporating the mMINDS into alcohol withdrawal management protocols. The expected reduction in initial benzodiazepine exposure utilizing mMINDS compared to CIWA-Ar groups suggests potential improvements in medication utilization. An average hospital length of stay of 5.8 days demonstrates opportunities to reduce hospitalization duration in AWS patients. The 14 ICU transfers with average ICU LOS of 4.2 days suggests opportunities to reduce transfers to higher level of care. Further investigation and implementation of mMINDS into Northside's AUD protocols could improve patient care and outcomes in AUD management.

11:00am – 11:15am Y **Evaluation of febrile neutropenia management at a large community hospital** Athena A

Presenters: Danielle Whybark

TITLE: Evaluation of febrile neutropenia management at a large community hospital

AUTHORS: Danielle Whybark, Kaci Ernst

OBJECTIVE: To describe appropriate management and outline potential strategies to optimize management of febrile neutropenia

SELF ASSESSMENT QUESTION: What is the recommended time to antibiotic administration from identification of fever in a patient with neutropenia?

BACKGROUND: Febrile neutropenia is an oncologic emergency that is defined as an oral temperature of 38.3°C or a sustained temperature of greater than 38°C for at least one hour in a patient who has an absolute neutrophil count (ANC) of less than 500 cells/μL or an ANC expected to decrease to less than 500 cells/μL within a 48-hour period. Due to the severity of this condition, assessment and treatment should take place immediately upon identification. Specifically, antibiotics should be administered within one hour of presentation as delays in therapy are associated with increased morbidity and mortality. Guidelines have been developed to expedite the management of febrile neutropenia once identified, and other institutions have implemented nurse-initiated protocols to mitigate treatment delays in high-risk patients. The purpose of this quality improvement initiative is to reduce time from fever onset to antibiotic initiation in patients with febrile neutropenia through trial of a nurse-initiated protocol.

METHODOLOGY: A retrospective analysis between January 2022 and September 2023 was performed to evaluate febrile neutropenia episodes in high-risk patients. Patients 18 years or older with acute myeloid leukemia, acute lymphoblastic leukemia, diffuse large B cell lymphoma, or myelodysplastic syndrome, who experienced a febrile neutropenia episode during admission were included for analysis. Patients treated in the emergency department were excluded from analysis. The primary endpoint was time to antibiotic administration from first fever. Secondary endpoints included mortality during admission, escalation to an intensive care unit, prophylactic antibiotic appropriateness, and culture results.

RESULTS: A total of 303 patients with ICD-10 codes for high-risk conditions were evaluated, of which 41 patients were included for analysis. The median time to antibiotic administration from first fever was 234 minutes with a delay of 170 minutes from fever to antibiotic ordered placed. Provider notification from the nurse occurred 41% of the time. Antimicrobial prophylaxis was ordered for 59% of included patients. Of the included patients, 29% required admission to an intensive care unit and 27% experienced mortality during hospital stay. The median length of stay was 10 days.

CONCLUSIONS: The primary endpoint of time to antibiotic administration from first fever was outside of the guideline-recommended one-hour window. This warrants strategies to decrease the delay in antimicrobial therapy. A nursing-initiated protocol, in which nursing is granted the ability to initiate pre-selected broad-spectrum antibiotics for neutropenic patients upon identification of a fever was approved for use on oncology units. Future directions include follow-up on the post-intervention group, staff education on appropriate febrile neutropenia management, and development of an institutional guideline from febrile neutropenia.

11:00am – 11:15am M **Integrated DSMES Multidisciplinary Clinic to Improve Outcomes in a Family Medicine Residency Clinic** Athena H

Presenters: Jayson Wojcinski

TITLE: Integrated DSMES Multidisciplinary Clinic to Improve Outcomes in a Family Medicine Residency Clinic

AUTHORS: Jayson Wojcinski, Jessica Odom, Amy Robinson, Alex Ewing

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The American Diabetes Association (ADA) emphasizes the importance of the patient-centered care model, which ensures that patient values guide clinical decisions. Pharmacists bring a unique skill set to patient care that can elevate patient outcomes when serving as a member of a diabetes management team. At Prisma Health Center for Family Medicine (CFM) Greenville, pharmacists have integrated into an ADA certified Diabetes Self-Management Education and Support (DSMES) expansion site to provide diabetes education to patients at the time of physician visits, as well as provide recommendations on medication therapy and self-care behaviors. The purpose of this study was to assess the effect of a referral-based, pharmacist-led DSMES clinic on hemoglobin A1c reduction in comparison with that of usual care at the same site.

METHODOLOGY: A single-center, retrospective chart review was conducted on patients ≥18 years of age with type 1 or 2 diabetes mellitus. Patients included in the multidisciplinary clinic group were initially referred to the diabetes clinic in 2022 while those included in the usual care group completed a new patient visit in 2022 at CFM Greenville with a primary care provider. The diabetes clinic included monthly patient visits with both a primary care provider and a diabetes care and education specialist. Patients in the diabetes clinic also received follow-up phone calls in between visits. The primary outcome was reduction in hemoglobin A1c from inclusion into the study to 6 months from initial visit. Secondary outcomes included health maintenance completion, number of visits during the study period, emergency room or hospital admissions related to diabetes care, weight loss, use of continuous glucose monitors (CGMs), and use of evidence-based therapies.

RESULTS: Fifty-five patients were included in the IRB-approved study, with 33 patient is the multidisciplinary care group and 21 patients in the usual care group. At baseline more patients in the multidisciplinary care group had a higher urine albumin to creatinine ratio, spoke a language other than English, and had a history of atherosclerotic cardiovascular disease. The mean A1c reduction was 3.3% in the pharmacist-led clinic and 1.9% in the primary care management group at 6 months. Overall, A1c dropped on average from 11.5% to 8.0% for the multidisciplinary group and 10.9% to 9.0% in the usual care group during the study period. The baseline characteristics and primary outcome were not statistically significant. The secondary outcomes of number of in-person visits, successful telephone encounters, and hospital admission related to diabetes were statistically significant favoring the multidisciplinary care group.

CONCLUSIONS: We observed a clinically significant difference in A1c lowering between the 2 study groups. The multidisciplinary group also had more patients placed on guideline directed medication therapy such as sodium-glucose cotransporter-2 inhibitors and glucagon-like peptide 1 agonists. This was likely due to the higher complexity of patients in this group in addition to having a pharmacist to provide medication access for patients. We believe that our current pharmacist DSMES services should be expanded because of the observed outcomes in this study. Additionally, with a greater population of patients we likely would have seen statistically significant differences between the two groups.

11:00am – 11:15am C **Evaluation of Initial Loop Diuretic Dosing in Acute Decompensated Heart Failure** Parthenon 2

Presenters: Emma Lemke

TITLE: Evaluation of Initial Loop Diuretic Dosing in Acute Decompensated Heart Failure

AUTHORS: Emma Lemke, Tracey Bastian, Thomas Neal

OBJECTIVE: Evaluate efficacy and safety outcomes of the initial 24 hour loop diuretic dose to home dose ratio in acute decompensated heart failure.

SELF ASSESSMENT QUESTION: Which of the following statements is true regarding the diuretic dose ratio?

BACKGROUND: Intravenous (IV) loop diuretics are the mainstay of therapy for acute decompensated heart failure, but guidance on the ideal dose of intravenous loop diuretic needed to achieve adequate diuresis is not well established. The purpose of this study is to evaluate the effect of initial intravenous loop diuretic dosing relative to home maintenance loop diuretic dosing on clinical outcomes in patients admitted for acute decompensated heart failure.

METHODOLOGY: This Institutional Review Board approved, retrospective chart review evaluated patients aged 18 years and older, admitted with a primary diagnosis of acute decompensated heart failure that received at least one dose of IV loop diuretic in the first 24 hours of admission. Of the 322 patients identified, 90 patients met criteria and are included in the analysis. Patients are stratified into cohorts labeled as equal, standard, and above based on the ratio of the initial 24 hour IV loop diuretic dose to the documented home oral loop diuretic dose. Equal is defined as a diuretic ratio of 0 – 1; standard is defined as a diuretic ratio of 1.1 – 2; and above is defined as a diuretic ratio of > 2. The primary outcome is the achievement of 3.5 liters of urine output at 48 hours. Secondary outcomes include the duration of IV loop diuretics in days and length of stay in days. Safety outcomes include the incidence of acute kidney injury, hypokalemia, and hypotension at 48 hours.

RESULTS: There was no statistically significant difference in the primary outcome of urinary output at 3.5 L at 48 hours in the equal (0-1), standard (1.1-2), or above (>2) group (43.5% vs 60.6% vs. 47.1%; p=0.38). No differences were found in the duration of IV loop diuretics in days (4.3 vs. 4.6 vs. 5; p=0.289) or the median length of stay in days (5.8 vs. 5.2 vs. 5.6; p=0.912). No differences were detected in the incidence of acute kidney injury at 48 hours (13% vs. 3% vs. 14.7%; p=0.24); hypokalemia at 48 hours (26.1% vs. 30.3% vs. 38.2%; p=0.60); or hypotension at 48 hours (13% vs. 12.1% vs. 14.7%; p=0.95).

CONCLUSIONS: Although a statistically significant difference was not detected in any of the outcomes, there were trends in the data that are potentially clinically significant. The standard group, defined as a diuretic ratio of 1.1-2, achieved the primary outcome most often, had the shortest length of stay, and the lowest incidence of acute kidney injury at 48 hours. The above group, defined as a diuretic ratio >2, had the most days of IV loop diuretics, the highest incidence of acute kidney injury and hypokalemia at 48 hours.

11:00am – 11:15am R **Evaluation of empiric antibiotic usage for skin and soft tissue Infections in the emergency department after education of clindamycin resistance patterns** Olympia 2

Presenters: Ryan Vathy

TITLE: Evaluation of empiric antibiotic usage for skin and soft tissue infections in the emergency department after education of clindamycin resistance patterns

AUTHORS: Ryan Vathy, Benjamin Albrecht, Shamie Das, Tim Moran, Andrew Pendley, Christele Francois

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The 2014 Infectious Disease Society of America (IDSA) Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue infections (SSTI) recommends using clindamycin for community acquired methicillin-resistant staphylococcus aureus (CA-MRSA) infections as long as institutional resistance is less than 10-15%. At Emory University Hospital (EUH), the use of clindamycin was common practice in the emergency department (ED) prior to 2016. However, local antibiograms showed 54% and 45% MRSA susceptibility, for intensive care unit (ICU) and ward patients respectively, to clindamycin. An antimicrobial stewardship program (ASP) educational initiative was implemented in the ED in February 2017. This initiative included an email sent to ED clinicians and an order set created to guide providers in utilizing alternative antibiotics other than clindamycin for SSTIs. This project's objective was to evaluate if the ASP initiative changed clindamycin use for SSTIs in the ED at EUH.

METHODOLOGY: This study was an Institutional Review Board-approved, single-center, retrospective chart review. Patients who presented to the emergency department at Emory University Hospital from January 1st, 2015 to January 1st, 2020 for cellulitis, abscess, furuncle, carbuncle, and erysipelas were identified and randomized using Microsoft Excel. Patients were excluded if they had a documented allergy to clindamycin, a necrotizing infection, were pregnant, were incarcerated, or were under 18 years of age. Included patients were randomized into two groups, including those presenting prior to February 2017 and afterward. The primary outcome was clindamycin utilization for empiric or definitive SSTI therapy. Secondary outcomes included subsequent hospitalization within 30 days, hospital length of stay, incidence of return ED visits within 30 days, adverse effects, disposition from the ED, and alternative antibiotics. Statistical analyses included descriptive statistics such as medians. Continuous variables were compared using a Mann-Whitney Test and categorial variables were compared using a Pearson Chi-Square test. A p value of less than 0.05 was considered statistically significant for analyses. To minimize confounding, a covariate balancing procedure, adjusted analysis, and sensitivity analysis were also performed.

RESULTS: Of the patients who were started on antibiotic therapy for SSTIs in the ED from 2015 to 2020, 6231 were included in the study and a total of 400 patients including 200 from pre-ASP intervention and 200 from post-ASP intervention were randomized for analysis to meet 80% power. The number of clindamycin orders, 17 (8.5%), significantly decreased in the post-ASP intervention group as compared to the pre-intervention group clindamycin orders, 62 (31%) (p value less than 0.001). There were no differences in subsequent hospitalization, ED disposition, 30-day hospitalization, length of stay, and ED return visits within 30 days. There was an increase in usage of alternative antibiotics seen in the post-intervention group, which is expected given the decrease in clindamycin utilization. Specifically, there was a statistically significant change in the number of patients prescribed cephalexin, with 19 (9.5%) vs. 36 (18%) ($p = 0.01$), and doxycycline, with 13 (6.5%) vs. 25 (12.5%) ($p = 0.04$), for the pre-ASP intervention vs post-intervention groups, respectively.

CONCLUSIONS: Results of this study showed that ASP education intervention on susceptibility patterns may influence prescribing patterns of ED providers. The findings of this study highlight an opportunity for ED-based ASP interventions using local susceptibility patterns with an electronic order-set, and the potential to improve

antibiotic selection according to IDSA published guidelines. Future work should seek to validate the impact on implementing antimicrobial stewardship initiatives in the ED including multi-site and prospective studies as well as establishing long-lasting ASP practices in the ED for a variety of infections outside of SSTIs.

11:00am – 11:15am R **Hydrocortisone and Fludrocortisone vs. Hydrocortisone to Reverse Septic Shock** Parthenon 1

Presenters: Cameron Koontz

TITLE: Hydrocortisone and Fludrocortisone vs. Hydrocortisone to Reverse Septic Shock

AUTHORS: Cameron Koontz, PharmD, Kristin Rebo, PharmD, BCCCP,CPP, Seth Garner, PharmD, BCCCP,

OBJECTIVE: Assess if the addition of fludrocortisone to hydrocortisone results in increased resolution of septic shock compared to hydrocortisone alone

SELF ASSESSMENT QUESTION: What steroids can be utilized in criticially ill patients in the setting of septic shock refractory to fluid resuscitation and vasopressor support?

BACKGROUND: Sepsis is a life-threatening condition characterized by a dysregulated host immune response to an infection. Endogenous glucocorticoids help to maintain host homeostasis by counteracting the detrimental effects of sepsis, such as excessive tissue inflammation, hemodynamic instability, and metabolic abnormalities. Although there are no definitive adjunctive therapies for the treatment of septic shock, the 2021 International Guidelines for Management of Sepsis and Septic Shock provide a weak recommendation to suggest the use of IV corticosteroids in the setting of ongoing septic shock requiring vasopressor therapy. Annane et al. assessed the clinical outcomes of septic shock patients receiving hydrocortisone plus fludrocortisone compared to placebo in the APROCCHSS Trial. Study investigators found that 90-day all-cause mortality, time to weaning off vasopressor support, and time to weaning from mechanical ventilation were lower among those who received combination therapy than those who received placebo. This study seeks to observe if the addition of fludrocortisone has a significant difference in the resolution of septic shock compared to hydrocortisone alone.

METHODOLOGY: This single-center, retrospective cohort study identified patients admitted to the surgical or trauma ICU from September 1st, 2021 to September 1st, 2023 who received either hydrocortisone plus fludrocortisone or hydrocortisone alone for the treatment of septic shock. Patient demographics and clinical data were manually extracted through chart review to assess primary and secondary outcomes. Appropriate statistical analyses were performed to determine differences between the treatment approaches. Current literature illustrates a lack of consensus among optimal strategies for the adjunctive treatment of septic patients with ongoing vasopressor requirements. Fludrocortisone in combination with hydrocortisone has been proposed to improve clinical outcomes, including decreased time to resolution of septic shock. This study will provide more guidance on fludrocortisone’s additive effects by comparing it to hydrocortisone monotherapy, in contrast to recent studies that compare the combination regimen to placebo.

RESULTS: A total of 60 patients were included in the analysis (30/group). Baseline demographics did not differ between those who received hydrocortisone + fludrocortisone and those who received hydrocortisone. The median age was 62 in the hydrocortisone + fludrocortisone group compared to 52 in the hydrocortisone group (*P*= 0.89). The majority of patients were white (87% vs. 90%, P >0.90). Illness severity scores, as evidenced by a median APACHE II Score, were similar (24.5 vs. 25, *P*= 0.9). Intra-abdominal infections were the primary source of sepsis in both groups (46.7% vs. 43%, *P*= 0.7). The primary outcome of time to vasopressor cessation in the hydrocortisone + fludrocortisone group was 3.70 days [2.62-4.95] compared to 3.00 days [2.20-3.85] in the hydrocortisone group (*P*= 0.040). Secondary outcomes such as the dose of norepinephrine before starting steroid treatment, duration of vasopressor therapy, and timing of steroid initiation were similar between both groups. The combination steroid group had 11 (36.7%) patients who required additional vasopressors after starting treatment, compared to 5 (16.7%) patients in the hydrocortisone group, although this was not significant (*P*= 0.31). Other secondary outcomes such as hospital length of stay, ICU length of stay, and disposition were similar.

CONCLUSIONS: The combination of hydrocortisone and fludrocortisone did not result in a faster resolution of septic shock compared to the use of hydrocortisone alone in critically ill surgical and trauma patients.

11:00am – 11:15am R **The effect of dosing frequency of insulin detemir on blood glucose control in critically ill adults** Olympia 1

Presenters: Kelsey Maynard

TITLE: The effect of dosing frequency of insulin detemir on blood glucose control in critically ill adults

AUTHORS: Kelsey Maynard, Sabrina Croft, Joseph Crosby

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Basal insulins are commonly started as once daily regimens to treat hyperglycemia due to their longer duration of actions. Insulin detemir is unique in that it has a dose-dependent duration of action with lower doses (0.1-0.2 units/kg) having a mean duration of 5.7-12.1 hours. Due to this varied duration of action, patients on lower doses of insulin detemir may benefit from twice daily dosing. The purpose of this study is to compare the effects of twice daily vs. daily dosing of insulin detemir at or less than 0.2 units/kg in critically ill patients with a history of type 2 diabetes or persistent hyperglycemia.

METHODOLOGY: This was a retrospective, observational analysis that included critically ill adult patients with a history of type 2 diabetes or persistent hyperglycemia and required initial insulin detemir administration at or less than 0.2 units/kg from June 1st, 2022 to June 30th, 2023. Patients were excluded if they were less than 18 years old, pregnant, had a history of type 1 diabetes, were admitted for diabetic ketoacidosis, were admitted for hyperosmolar hyperglycemic state, or received continuous regular insulin IV infusions. Baseline demographic data, glucose levels, mortality rates, HbA1c levels, hypoglycemia events, hypoglycemia treatment, steroid use, basal/prandial/correction insulin regimens, diet including total parenteral nutrition (TPN) and enteral tube feeds, and oral diabetes medications will be collected. The primary outcome was to determine the percentage of blood glucose levels at or less than 180 mg/dL. Secondary outcomes were to determine the percentage of daytime (09:00 to 21:00) glucose levels at or less than 180 mg/dL, determine the percentage of overnight (21:01 to 08:59) glucose levels at or less than 180 mg/dL, determine the percentage of blood glucose levels within 140 to 180 mg/dL, determine the percentage of blood glucose levels greater than 300 mg/dL, determine the percentage of blood glucose levels at or above 200 mg/dL, number of hypoglycemia events (blood glucose at or below 70 mg/dL), and mortality rates.

RESULTS: 88 patients met inclusion criteria for analysis with 68 patients receiving daily doses of insulin detemir and 20 receiving twice daily dosing of insulin detemir. About 50% of patients were males in each group, approximately 80% of patients were type 2 diabetics, and both groups had an average HbA1c of 7.5. Average starting insulin detemir doses were 11 units in the daily dosing group (0.12 units/kg) vs. 9.4 units in the twice daily dosing group (0.10 units/kg). Seven patients (10%) in the daily dosing group vs. two patients (10%) in the twice daily dosing group were receiving scheduled insulin aspart. 48% of patients in the daily dosing group vs. 39% of patients in the twice daily dosing group had glucoses at or less than 180 mg/dL (p=0.00036). 23% of patients in the daily dosing group vs. 19% of patients in the twice daily dosing group had blood glucoses within 140 to 180 mg/dL (p=0.025). 49 patients in the daily dosing group experienced hypoglycemia (blood glucose at or below 70 mg/dL) with 27 patients (55%) requiring treatment. 15 patients in the twice daily dosing group experienced hypoglycemia and 10 patients (66.7%) required treatment.

CONCLUSIONS: Twice daily dosing of lower doses of insulin detemir (at or below 0.2 units/kg) did not result in greater glucose control in critically ill patients with type 2 diabetes or persistent hyperglycemia when compared to once daily dosing.

11:00am – 11:15am F **Evaluation of Antibiotic Administration Surrounding Interventional Radiology Procedures** Athena D

Presenters: Courtney Jackson

TITLE: Evaluation of Antibiotic Administration Surrounding Interventional Radiology Procedures

AUTHORS: Courtney Jackson, Austin Paytes, Jeremy Frens, Dylan Suttle

OBJECTIVE: Discuss practice change surrounding the standardization of periprocedural antibiotic prophylaxis for interventional radiology (IR) procedures

SELF ASSESSMENT QUESTION: True or False: Implementation of a guidance document for peri-procedural prophylaxis improves appropriateness of antibiotic selection.

BACKGROUND: Interventional radiology (IR) procedures are typically minimally invasive and tend to have fewer infectious complications. However, the risk for bacterial translocation depends on procedure type, access site inflammation, and involved organ system. There are different recommendations for periprocedural antibiotic selection and duration based on these factors. Historically, antibiotic procedural prophylaxis selection was provider-dependent, and pharmacy was minimally involved. In February 2022, Cone Health Antimicrobial Management Program (CHAMP) partnered with IR providers, authoring a guidance document for periprocedural antibiotic prophylaxis based on available literature. The purpose of this study was to assess compliance with these recommendations.

METHODOLOGY: This is a multi-center, prospective study with a historical cohort categorized as non-human subjects research by local IRB. Post-intervention data of patients undergoing IR procedures from April 2022 to December 2022 were compared to a historical cohort from April 2021 to December 2021. Data collected included procedure type, MRSA PCR colonization status, provider placing orders for antibiotics, demographics, drug allergies, and antibiotic used. Various individual IR procedures including arterial, venous and visceral organ procedures were keyed to about 20 procedure terms. The primary objective of this study was a composite of appropriateness of antibiotic selection, dose, and duration for periprocedural prophylaxis as indicated in the CHAMP Guidance Document. Secondary objectives included antibiotic given if indicated, correct antibiotic selection, correct antibiotic dose based on weight, correct duration, and procedural-related infection for port-placement. Primary and secondary objectives were assessed using Fisher’s exact test using Stata statistical software.

RESULTS: Greater adherence to CHAMP-IR guidance by primary outcome occurred in the post-intervention group for a composite of all procedures (38% vs 69%, $p<0.001$). Improved rates of adherence were also observed for several individual procedures, including port placement (0% vs 100%, $p=0.006$), transjugular intrahepatic portosystemic shunt (15% vs 82%, $p=0.003$), percutaneous cholangiogram (0% vs 50%, $p=0.04$), and transarterial radioembolization (0% vs 43%, $p=0.002$) procedures. No difference was seen for percutaneous nephrostomy (0% vs 33%, $p=0.46$), percutaneous cholecystostomy (0% vs 10%, $p>0.99$), and kyphoplasty procedures (100% vs 100%, $p>0.99$). For almost all procedures only requiring pre-procedural antibiotics, doses were not extended beyond pre-procedural doses. For port-placement procedures, while no procedural-related infections were identified, one patient in the pre-intervention group did have an extensive history of port malfunctions without infection.

CONCLUSIONS: Implementation of a guidance document for periprocedural prophylaxis improved appropriateness of antibiotic selection, dose, and duration.

11:00am – 11:15am F **Intravenous versus partial oral therapy for gram-positive bacteremia** Athena C

Presenters: Harrison Hyman

TITLE: Intravenous versus partial oral therapy for gram-positive bacteremia

AUTHORS: Harrison Hyman, Hannah Harpe, Kelly Gamble

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: To evaluate the safety and efficacy of oral stepdown therapy in patients diagnosed with gram-positive bacteremia.

METHODOLOGY: This was a retrospective cohort study conducted on patients diagnosed with gram-positive bacteremia between January 2023 and August 2023. The control and intervention groups consisted of patients who received a complete therapy course with intravenous (IV) antibiotics and stepdown from IV to oral (PO) antibiotics, respectively. Adults admitted to any Mcleod Health facility with a blood culture recovering gram-positive bacteria and receiving at least one dose of an IV antibiotic were included in the study. The included organisms consist of methicillin-susceptible Staphylococcus aureus, methicillin-resistant Staphylococcus aureus, Enterococcus faecalis (including vancomycin-resistant isolates), Enterococcus faecium (including vancomycin-resistant isolates), Streptococcus pneumoniae, Streptococcus pyogenes, and Streptococcus agalactiae. The primary outcome was a 60-day composite evaluating the incidence of all-cause mortality, treatment failure, or readmission. Treatment failure was defined as a reoccurring positive blood cultures or deep-seated infection with the index organism after completion of the antimicrobial regimen. Readmission was defined as a new admission or emergency department visit at a Mcleod Health facility for any cause occurring after discharge from the index hospitalization. Secondary outcomes included IV antibiotics duration during the index hospitalization, hospital length of stay, treatment complications, and a change in treatment strategy.

RESULTS: A total of 333 patients were screened: 182 met inclusion criteria and 151 were excluded. The primary outcome was met in 40% (n=45/97) of the IV and 28% (n=24/85) of the PO groups. Sixty-day all-cause mortality and treatment failure were both observed in 6% (n=6/97) of the IV group, while 43% (n=42/97) underwent hospital readmission. In the PO group 1% (n=1/85) experienced 60-day all-cause mortality, 6% (n=5/85) treatment failure, and 27% (n=23/85) had a hospital readmission. During the index hospitalization, IV antibiotics had a median duration of 11 (9) days and 6 (4) days in the IV and PO groups, respectively. Seven percent (n=6/85) of the PO group experienced a change in treatment strategy.

CONCLUSIONS: Oral stepdown therapy may be an equally efficacious alternative to a complete IV course for gram-positive bacteremia treatment while showing a decrease in hospital length of stay and complications. These results are promising and should encourage future prospective studies encompassing larger patient populations with a focus on single isolates, as additional data is greatly needed in this area of practice.

11:00am – 11:15am D **Incorporation of a Clinical Decision Support Tool into the Inpatient Workflow in the Salisbury VA** Athena J

Presenters: Joseph Kelly

TITLE: Incorporation of a Clinical Decision Support Tool into the Inpatient Workflow in the Salisbury VA
AUTHORS: Joseph Kelly, Alyssa Conner, Rashmi Joshi, Allison Schmitz, Camille Robinette
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Polypharmacy, often defined as the use of ten or more medications to treat medical conditions, poses substantial risks, including adverse drug events (ADEs), hospitalization, and mortality. Approximately one in ten hospital admissions stems from prescription-related ADEs. The mitigation of polypharmacy could be feasibly achieved through the implementation of a specialized medication management system led by healthcare practitioners.

The VIONE (vital, important, optional, not indicated, and every medication has an indication) methodology utilizes clinical decision support (CDS) tools to optimize medication regimens through the discontinuation of potentially inappropriate medications (PIMs). VIONE employs various dashboards to create an infrastructure to streamline medication management and reduce polypharmacy. A CDS tool is a broad term that encompasses any electronic or paper aid that uses readily available information to assist with clinical interventions. Despite the positive impact of CDS tool utilization, establishing how to incorporate CDS tools into a sustainable workflow is the most common barrier. Provider education and clear communication are the most important aspects cited to effectively overcome this barrier. The purpose of this quality improvement project is to measure the feasibility and effectiveness of integrating the VIONE CDS tool into the existing inpatient workflow at the Salisbury Veteran Affairs Medical Center (SVAMC).
METHODOLOGY: This is a single-center, prospective, pharmacist-driven quality improvement project. The initial interdisciplinary education phase was designed as 15-minute academic detailing provider outreach visits. The outreach visits consisted of a two-way exchange of information where the proposed implementation plan was shared, and providers had the opportunity to express anticipated concerns and challenges. Once provider buy-in was established, the proposed workflow was implemented, and the data collection phase began. The VIONE Inpatient Risk Dashboard is used to identify patients who meet inclusion criteria: admission to the SVAMC medical or intensive care inpatient units, 10 or more active medication orders, and risk score 5 or greater using the VIONE Risk Calculator Version 2.0 (risk of PIMs). Each prescribed medication will be reviewed by a pharmacist to determine appropriateness for indication. Medications deemed “vital” or “important” will be continued. Medications deemed “optional” or “not indicated” will be discontinued by the pharmacist if within their scope or the recommendation to discontinue will be forwarded to the provider. The primary outcome is the volume of VIONE notes completed. Secondary outcomes include the volume of deprescribed PIMs and 30-day readmission rates of patients assessed. Data collection will conclude on March 29, 2024.
RESULTS: TBD
CONCLUSIONS: TBD

11:00am – 11:15am P **Assessing Opioid Prescribing Habits Following Surgical Interventions** Athena I

Presenters: Amelia Clary

TITLE: Assessing Opioid Prescribing Habits Following Surgical Interventions

AUTHORS: Amelia Clary, Pharm.D., Denise Courtney, Pharm.D.

OBJECTIVE: Assess post-surgical prescribing patterns for outpatient opioid therapy in the veteran population.

SELF ASSESSMENT QUESTION: List some resources that can be used to evaluate opioid prescriptions following surgical procedures.

BACKGROUND: Even if opioids are used for valid health concerns, there are risks that should be addressed before initiation. Opioids can cause constipation, respiratory depression, and CNS effects when used acutely or chronically. A lack of strong evidence exists to support using chronic opioids for noncancer pain. However, there are still concerns regarding the number of patients who are initiated on opioids for an acute surgery and continue to take them for over 3 months. To combat the ongoing opioid epidemic, there are numerous resources and strategies available to help clinicians prescribe opioids appropriately. However, the treatment of pain is subjective, relying on patient reports as opposed to objective information. This emphasizes the importance of assessing prescribing habits to prevent chronic opioid use and overdose events, especially in vulnerable populations.

METHODOLOGY: This is a retrospective quality improvement project assessing current post surgical opioid prescribing habits at the Atlanta VA Health Care System. The VA Acute Opioid Patient Dashboard was utilized to generate a patient list of those receiving outpatient opioid therapy on August 7th, 2023. This report includes information from 90 days prior to extraction of the data. The prescriptions were assessed for appropriateness based on current, surgery-specific recommendations from validated resources and patient specific risk factors. Patients were reassessed after 90 days from the initial prescription to see if they meet the criteria for chronic opioid use. Additionally, descriptive statistics were performed to analyze the data and draw conclusions.

RESULTS: There were 189 patients who received a total of 225 prescriptions for outpatient opioid therapy following an acute surgical intervention within the predetermined timeframe. Of the 189 patients, only 11 received a prescription for naloxone. The most frequently prescribed agent was oxycodone 5mg/acetaminophen 325mg, accounting for 75 prescriptions. The most common surgery types were orthopedic, GI, and ENT, respectively. The average MME per total prescription was 141.6MME. The average days supply was 7.85 days, but the majority of patients only received a 3-day supply. Overall, patients received an average of ~18MME/day per prescription. There were no patients in this study that progressed to chronic opioid therapy.

CONCLUSIONS: Based on the results of this study, the post-surgical opioid prescribing practices at the Atlanta VA Medical Center follow a conservative approach when considering the average MME/day for each prescription and the most common duration of therapy. While areas for improvement were identified, the results of this study demonstrate an overall awareness of the risks of opioid use in a vulnerable population.

11:20am – 11:35am M **Willingness of Veterans to participate in a pharmacogenomics service for improving statin tolerance** Athena H

Presenters: William Trey Johnson

TITLE: Willingness of Veterans to participate in a pharmacogenomics service to improve statin tolerance

AUTHORS: Trey Johnson, Courtney Watts Alexander, Garrett Aikens, Kimberly Braxton Lloyd, Courtney Gamston

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Statin medications are recommended as first-line pharmacotherapy to reduce the risk of atherosclerotic cardiovascular disease (ASCVD). However, up to 20% of patients experience statin-associated muscle symptoms (SAMS), which can negatively impact medication adherence. At the Auburn University Pharmaceutical Care Center Population Health Clinic, Veterans at risk for ASCVD that are not taking a statin are identified by the VA's population health dashboard and screened for a history of SAMS. Those that have a history of SAMS are offered pharmacogenomics (PGx) testing for genetic risk factors of SAMS to inform use of alternative therapy. This study evaluated the impact of this PGx service on statin utilization and lipid profiles in Veterans with a history of SAMS and risk factors for ASCVD.

METHODOLOGY: This was a retrospective review of records from the Clinic's SAMS Evaluation Service. Descriptive statistics were utilized to characterize the number of individuals identified, service participation, and population demographics. The primary outcome was proportion of patients reached that agreed to participate in PGx testing. Genetic variability in SLCO1B1 and ABCG2 genes were assessed to determine the prevalence of variation in this population. Participants with variants associated with development of SAMS received therapy according to the recommendations of the Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines and were monitored for therapy tolerability and impact on lipid values.

RESULTS: TBD

CONCLUSIONS:

11:20am – 11:35am C **Accuracy of heparin-induced thrombocytopenia testing methods in cardiovascular surgery patients** Parthenon 2

Presenters: Ryan Meacham

TITLE: Accuracy of heparin-induced thrombocytopenia testing methods in cardiovascular surgery patients

AUTHORS: Ryan C. Meacham; Jeannie Watson; Chris Larkin; Michelle Wilcox; Forrest Busler

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Identifying heparin-induced thrombocytopenia (HIT) in cardiovascular (CV) surgery patients can be difficult, as these patients often develop thrombocytopenia mimicking the presentation of HIT. As a result, CV surgery patients are often tested for HIT, but the testing accuracy in CV surgery patients is not well established. This study assessed the accuracy of enzyme-linked immunoassay (ELISA) testing vs. automated latex immunoturbidimetric assay (LIA) testing in CV surgery patients who received mechanical cardiac support (MCS) and/or cardiopulmonary bypass (CPB).

METHODOLOGY: This study is a single-center, retrospective chart review of adult patients who required MCS and/or CPB at Ascension Saint Thomas Hospital West (ASTHW) and were screened for HIT from August 31, 2021, through September 30, 2023. Patients were distributed into three groups based on the initial immunoassay test ordered (ELISA, LIA 1, LIA 2). Of note, LIA 1 and LIA 2 designate different lot groups received at our institution. The primary objective compares the accuracy between ELISA and LIA tests, expressed as positive predictive value (PPV). Patients were included if screened for HIT with a serotonin release assay (SRA) to confirm presumptive positive ELISA or LIA results. Patients were considered to be HIT-positive with a positive SRA result. Patients were also risk stratified based on the 4T score, a clinical scoring tool to predict the likelihood of a patient being HIT-positive. Secondary outcomes included inpatient mortality, total and intensive care unit (ICU) length of stay, and major bleeding events.

RESULTS: Overall, 50 of 1,226 patients who received ELISA or LIA tests at ASTHW within the study period were included in the analyses [ELISA (n=20); LIA 1 (n=18); LIA 2 (n=12)]. Baseline characteristics were similar, with median ages in the late sixties and about one-third of patients being female. Among the enrolled patients, the overall positive predictive value (PPV) was low based on the ensuing SRA result [Test Type (PPV%): ELISA (19%); LIA 1 (15%); LIA 2 (8%); (P=0.454)]. However, when stratified based on the 4T score, a higher PPV was seen for patients with higher scores [4T score less than or equal to 3 (PPV: ELISA 10%; LIA 1 0%; LIA 2 0%); 4T score 4-5 (PPV: ELISA 14.3%; LIA 1 25%; LIA 2 25%); 4T score 6-8 (PPV: ELISA 80%; LIA 1 100%; LIA 2 had 0 patients with score 6-8)]. No significant difference was found between groups for a 4T score less than or equal to 3 (p=0.908), 4-5 (p= 0.875), or 6-8 (p= 1). A statistically significant difference was seen when the PPV was compared for 4T scores less than or equal to 3, 4-5, and 6-8 (p= 0.0045). Statistically significant results were not seen for inpatient mortality (P=0.776), major bleeding (P=0.427), total length of stay (P=0.949), or ICU length of stay (P=0.095).

CONCLUSIONS: ELISA and LIA testing showed similar accuracy when screening for HIT in CV surgery patients who received CPB and/or MCS patients at our institution. The overall PPV was very low for each group compared to published literature, but the PPV for each group increased when correlated with higher 4T scores. False positive results complicate patient care and clinical decision-making, so carefully considering initial test results in conjunction with validated screening tools is crucial. Our results suggest that pre-test screening of the likelihood of HIT may help to reduce unnecessary HIT tests. Further investigations could be made into the financial impact of false positive results and the accuracy of testing based on surgery or procedure type.

11:20am – 11:35am G **Pharmacist-Led Deprescribing of Aspirin for Primary Prevention in an Older Veteran Population** Athena J

Presenters: Amber Jefferson

TITLE: Pharmacist-Led Deprescribing of Aspirin for Primary Prevention in an Older Veteran Population
AUTHORS: Amber Jefferson PharmD
OBJECTIVE: Identify appropriate populations for deprescribing aspirin therapy
SELF ASSESSMENT QUESTION: Which is an appropriate reason to continue aspirin therapy?
BACKGROUND: Aspirin has been a mainstay therapy for preventing atherosclerotic cardiovascular disease (ASCVD) for decades due to its ability to irreversibly inhibit platelet function, reducing the risk of atherothrombosis. Recent clinical trials, such as the ARRIVE and ASCEND trials, have shown that aspirin therapy lowers ASCVD events but also contributes to an increase in major bleeding events. According to the 2019 American College of Cardiology (ACC) and American Heart Association (AHA) guidelines, using aspirin for primary prevention in patients over 70 years of age is potentially harmful due to the increased risk of bleeding. This initiative aims to expand pharmacy services by demonstrating the role of a clinical pharmacist practitioner (CPP) in deprescribing aspirin for primary prevention in geriatric Veterans.
METHODOLOGY: This project was a single-center, longitudinal, quality-improvement initiative. Older Veterans prescribed aspirin were identified using the “Vital, Important, Optional, Not needed, Every medication has an indication Potentially Inappropriate Medication deprescribing dashboard.” The resident contacted Veterans aged 70 or older under the care of one of the three geriatric primary care providers at the VA, who were prescribed aspirin. Veterans followed by a provider outside of the prespecified clinics or with aspirin listed as a non-VA medication were excluded. The pharmacy resident reviewed patient charts to identify any secondary prevention indications. Patients were contacted via telephone to conduct an aspirin management appointment, and based on patient-specific factors, the pharmacy resident recommended to either discontinue, continue, or decrease aspirin dose. Interventions were documented in the Computerized Patient Record System using a specified note template. Data collection occurred between Aug 2023 and Nov 2023. The primary objective of this initiative was to recruit patients for pharmacist-led deprescribing of aspirin therapy for primary prevention. Secondary objectives included recommending discontinuation or dose reduction of aspirin therapy, providing patient education regarding increased bleeding risk associated with aspirin use, and notifying providers to document an appropriate diagnosis, if patients were taking aspirin for secondary prevention in the CPRS.
RESULTS: A total of 105 Veterans were recruited for pharmacist-led deprescribing of aspirin therapy for primary prevention. Of the 105 Veterans, four did not meet inclusion criteria, two refused service, two were unable to reach, and two were deceased for a total of 10 (9.5%) Veterans not interviewed. There were 95 (90.5%) Veterans that agreed to the service. All Veterans received education regarding the correlation between aspirin and bleeding risk. There were 52 (55%) Veterans that were recommended to discontinued aspirin. Of those Veterans, 43 (83%) agreed to discontinue aspirin, and 9 (17%) wanted to continue current therapy. The remaining 43 (45%) Veterans agreed to continue aspirin therapy. There was one Veteran that received and accepted the recommendation to decrease aspirin from 325 mg to 81 mg daily. Before the intervention, 19 (44%) Veterans had an indication for secondary prevention, and 24 (56%) Veterans required a recommendation for PCP to add indication to their problem list.
CONCLUSIONS: The completion of this initiative has demonstrated the pharmacist’s ability to review and assess patient charts to identify and recommend medication deprescribing in specific patient populations. It highlighted the need for an available CPP to perform medication reconciliation, provide recommendations, and alert PCPs to incomplete problem list documentation. The service should be broaden to patients over the age of 70 in other clinics outside of the geriatric clinics. The benefits of the service provided in this initiative should be considered to

allow for the expansion of the role geriatric CPPs in primary care to deprescribe and implement safe medication practices.

11:20am – 11:35am F **Assessing Outcomes of Prescribing ARV Agents to Patients Unable to Achieve UDVL on an Active Regimen** Athena D

Presenters: Jasmine Adegbuji

TITLE: Assessing Outcomes of Prescribing ARV Agents to Patients Unable to Achieve UDVL on an Active Regimen

AUTHORS: Jasmine Adegbuji, Kristina Hazard, Meshell Maxam, Eleena Dhakal, Summer Sizemore

OBJECTIVE: Identify potential causes of lack of virologic suppression.

SELF ASSESSMENT QUESTION: Which of the following is not a potential cause of the inability to acheive virologic suppression?

BACKGROUND: The treatment goal for human immunodeficiency virus (HIV) management is to achieve and maintain an undetectable viral load (UD VL) on antiretroviral (ARV) therapy. In practice, patients may not be able to achieve and maintain an UD VL on a standard three-drug regimen. Without high enough VLs, genotype testing may not be reliable due to instrument limitations and therefore, a presumed fourth or fifth agent may be added. There are limited studies that evaluate adding active ARV agents to patients with detectable VLs while on presumed fully active (PFA) regimen. The purpose of this study is to evaluate clinical outcomes of prescribing additional ARV to patients who are unable to achieve an UD VL on a three drug PFA regimen alone.

METHODOLOGY: This was a retrospective, IRB-exempt study including adult patients living with HIV during January 2021 to December 2022 with at least two consecutive detectable VLs between 20-1000 copies/mL while receiving three PFA agents who are prescribed fourth and/or fifth PFA agents with a goal to achieve an UD VL. Patients with major drug interactions, receiving entry, fusion, or post-attachment inhibitors, or pregnant were excluded. Patient adherence and genotypes were not independently assessed. The primary outcome evaluated virologic response after the addition of presumed fourth and/or fifth active agents. The secondary outcome was to evaluate potential factors that may contribute to obtaining an UD VL. Data was collected from the electronic medical record and analyzed using descriptive and inferential statistics.

RESULTS: Of the 137 patients included, 104 continued a three-drug regimen (3DR), 33 were prescribed a fourth ARV (4DR), and 3 received a fifth ARV (5DR). Patients were on their preceding 3DR for 1.6 years prior to a fourth agent added. Ninety-four percent (31/33) utilized Biktarvy as their 3DR. Of the 3DR group, 83% were males, 44% were aged 50 years or older, and 74% (77/104) achieved an UD VL. The majority of the 4DR group were male (73%) and age 50 years or older (55%). Average VL among the 4DR group prior to a fourth agent being added was 101 copies/mL (range: 23-267) and 64% (21/33) obtained an UD VL. Of the 5DR group, 67% (2/3) achieved UD VL.

Among the 4DR group, patients who achieved an UD VL were mostly male and at least 50 years old. A Wilcoxon rank-sum test confirmed age, days between 3DR and start of 4DR, and VL prior to 4DR, did not have an association. Among the 3DR group, neither age group nor gender was associated with achieving an UD VL. Secondary analysis using the Kaplan-Meier survival curves showed that, in 222 days, 50% of the patients in 4DR group reached an UD VL (462 days for 75%). However, for patients in the 3DR group, the time taken for 50% of the patients to reach an UD VL was 530 days (908 days for 75%).

CONCLUSIONS: The majority of patients on a 3DR acheived an UD VL. A small population of patients benefitted from addition of a fourth or fifth agent. Various reasons, including adherence, may have impacted likelihood of

acheiving an UD VL. It is also important to observe that virologic suppression was not always sustained in the 4DR/5DR group after initial suppression.

11:20am – 11:35am M **Utilization of remote CGM services by pharmacists in an outpatient endocrine clinic** Athena G

Presenters: Brynna Corley

TITLE: Utilization of remote CGM services by pharmacists in an outpatient endocrine clinic

AUTHORS: Brynna Corley, Halee Parham, Heather McLeod, Taylor Wells, Emily Cooley, Danielle McGlynn

OBJECTIVE: List the appropriate CPT codes that can be used for pharmacist reimbursement when interpreting continuous glucose monitoring data

SELF ASSESSMENT QUESTION: Which scenario would you be able to collect reimbursement for CPT code 95251?

BACKGROUND: The purpose of this project was to investigate justifying time and reimbursement for pharmacy remote monitoring of Continuous Glucose Monitoring (CGM) data. Pharmacists at Cape Fear Valley Health System (CFVHS) are already responding to phone calls from patients regarding CGM data multiple times a day for patients without a scheduled phone appointment. The phone calls consist of assessing CGM data, reviewing with the provider and/or adjusting treatment plans if needed, and discussing with patient. Currently, CGM calls replace an in-clinic appointment, but without scheduling and reimbursement. Telephonic monitoring is performed in-between scheduled patient appointments. The goal of this study was to evaluate the frequency of remote monitoring services, time spent, and reimbursement potential to justify adding remote monitoring appointments to the pharmacist's schedule.

METHODOLOGY: This was a single center, descriptive study, conducted within the Cape Fear Valley Diabetes and Endocrine Center. Time spent with patients utilizing CGMs was tracked. The primary objective was to quantify time spent on reviewing telephonic continuous glucose monitoring services. Secondary objectives were to quantify potential reimbursement for telephonic monitoring services and to determine the average number of remote CGM services performed each week.

RESULTS: Over the course of 13 weeks, total time spent on the phone reviewing CGM data was 9 hours and 33 minutes. This is equivalent to an average of 44 minutes per week. There was a total of 27 patient phone calls made during the study. The average call duration was 21 minutes. Phone call length varied from 5 minutes to 37 minutes

CONCLUSIONS: Reimbursement for CGM interpretation utilizes CPT code 95251, which provides reimbursement of $32.59 per interpretation based on the Physician Fee Schedule for Medicaid and Medicare. Since 3 of these encounters could be completed per hour, this would result in total reimbursement of $97.77 per hour, for the CGM interpretation and download. If a pharmacist can bill a telephonic visit code, such 98967 along with the CGM code potential reimbursement for 3 encounters per hour the reimbursement would be $166.38. The average in-person appointment with a pharmacist is billed incident-to with CPT Codes 95251 and 99211 which results in a total reimbursement of $54.52 per hour. The time a pharmacist spent making CGM calls could produce a similar or potentially greater reimbursement per hour depending on the insurance company when compared to in-person appointments. Billing for pharmacist remote monitoring services would allow the pharmacist to have dedicated time to spend with telephonic patients without sacrificing reimbursement opportunities.

11:20am – 11:35am R **Effects of desmopressin on thromboelastography-platelet mapping** Parthenon 1

Presenters: Kacy Oldsen

TITLE: Effects of desmopressin on thromboelastography-platelet mapping

AUTHORS: Kacy Oldsen, Mallory Stringer, Eric Shaw, Katherine McBride, Audrey Johnson

OBJECTIVE: Explore the effects of DDAVP on platelet inhibition in patients with or without antiplatelet use

SELF ASSESSMENT QUESTION: Was there a decrease in AA and/or ADP inhibition following DDAVP administration?

BACKGROUND: Viscoelastographic testing, such as thromboelastography (TEG), offer many benefits over aPTT, PT, and INR as they provide assessment of the degree of coagulopathy. Traditional coagulation tests also fail to detect disturbances in a patient's platelet function. TEG platelet mapping (TEG-PM) was created to address this need. TEG-PM allows for targeted correction of hemostatic disturbances in both patients with and without prior antiplatelet use. TEG-PM consists of two components: arachidonic acid (AA) that is sensitive to aspirin and adenosine diphosphate (ADP) that is sensitive to antiplatelets such as clopidogrel. Demopressin (DDAVP) is a vasopressin analog that enhances platelet procoagulant activity by increasing plasma von Willebrand factor, factor VIII, and intracellular platelet calcium and sodium concentrations. DDAVP is recommended in multiple guidelines, such as the Society of Critical Care Medicine/Neurocritical Care Society guidelines for Reversal of Antithrombotics in Intracranial Hemorrhage and the American Society of Anesthesiologist Task Force on Perioperative Blood Management, for bleeding patients with platelet dysfunction or on antiplatelet therapy. Despite research on the use of DDAVP, literature lacks in regard to the effects of DDAVP on reversal of platelet inhibition on TEG-PM. This study aimed to explore the effects of DDAVP administration on platelet inhibition in patients with or without prior antiplatelet use.

METHODOLOGY: A single-center retrospective chart review was performed at a level-1 trauma and academic medical facility. Patients were included if a platelet mapping TEG was performed prior to and after administration of desmopressin. Patients were excluded if desmopressin was administered without an abnormal platelet mapping TEG and if the patient was pregnant or incarcerated. The primary outcome was the improvement of AA and/or ADP inhibition on platelet mapping TEG after desmopressin administration. This was defined as a decrease in percent inhibition of AA and/or ADP. Secondary outcomes included a composite of need for emergent intervention or incidence of rebleeding, defined as any incidence of new or worsening bleed or cerebral edema on imaging. Other outcomes included blood products transfused, need for additional DDAVP doses, bleeding related mortality, and all-cause mortality.

RESULTS: A total of 41 patients were included in the study. In the primary outcome, just over 50% of patients had any change in % AA and/or % ADP (51.2% and 56%) after a single dose of DDAVP. Eight patients received an additional dose of DDAVP and over half of them had a change in % AA and/or % ADP (50% and 75%). A total of 24 patients met the criteria for the secondary composite outcome. 26.8% had all-cause mortality with half of them being bleeding related. In a sub-group analysis of traumatic brain injury (TBI) (N=23) over 50% of patients with TBIs met the primary outcome.

CONCLUSIONS: Based on the results of this study, there was a decrease in AA and ADP inhibition, but whether this is clinically significant and how these results relate to clinical outcomes is not well defined. Larger studies are needed to further assess the effects of DDAVP on TEG-PM.

11:20am – 11:35am R **Evaluation of periprocedural antibiotics for EVD placement in the NSICU** Olympia 1

Presenters: Colter Sheveland

TITLE: Evaluation of periprocedural antibiotics for EVD placement in the NSICU

AUTHORS: Colter Sheveland; Erin Creech; Celeste Caulder; Chengwen Teng

OBJECTIVE: To compare the utilization of periprocedural antibiotics for EVD placement following EVD bundle implementation

SELF ASSESSMENT QUESTION: Compare the utilization of periprocedural antibiotics in neuroscience ICU (NSICU) patients undergoing EVD placement before and after the implementation of an EVD bundle

BACKGROUND: External ventricular drains (EVD) allow for monitoring of intracranial pressure (ICP) and for cerebrospinal fluid diversion in the setting of acute hydrocephalus. Infectious complications have been reported in up to nearly one-third of patients following EVD placement. The purpose of this study is to compare the utilization of periprocedural antibiotics for infection prophylaxis for Neuroscience Intensive Care Unit (NSICU) patients undergoing EVD placement before and after the implementation of an EVD bundle.

METHODOLOGY: An IRB-approved, retrospective, pre-/post-study was conducted on adult patients who underwent EVD placement and were admitted to the NSICU during the same admission. Notable exclusions were those patients with a documented ventriculitis and/or meningitis prior to EVD placement or a ventricular drain present upon admission. Baseline characteristics and endpoints were manually collected using a pre-specified REDCap form. The primary endpoint of the proportion of patients who meet the criteria of receiving perioperative antibiotics was evaluated in the pre-EVD group from August 1, 2021 to July 31 2022 and in the post-EVD group from September 1, 2022 to August 31, 2023. Key secondary endpoints included the rate of documented or suspected CNS infections per 1000-EVD days, length of hospital and ICU stay, and 30-day inpatient mortality.

RESULTS: A total of 1630 charts were reviewed, and 176 patients were included in the analysis (102 in the pre-EVDb group and 74 in the post-EVDb group). Baseline characteristics were similar between groups, including admission severity of illness indices, such as the median Charlson Comorbidity Index (8.5 vs. 8 p = 0.089) and median Glascow Coma Score (2.5 vs. 3.5, p = 0.316), for the pre-EVDb and post-EVDb groups, respectively. There was a statistically significant increase in the utilization of periprocedural antibiotics comparing the pre-EVDb group and the post-EVDb group (34.3% vs. 56.8%, p = 0.004). There was no difference in documented or suspected CNS infections (42% vs. 37.7%, p = 0.8186). A shorter median length hospital of stay was observed in the post-EVD group, 12.9 days, compared with the pre-EVDb group of 16.4 days, p = 0.014. There was no difference in the median NSICU length of stay (13 days vs. 9 days, p = 0.052) or 30-day all-cause inpatient mortality (34.3% vs. 44.6%, p =0.21).

CONCLUSIONS: The implementation of a standardized bundle for patients undergoing EVD placement led to an increase in periprocedural antibiotic utilization, albeit at a suboptimal rate. A statistically significant reduction in rates of CNS infection rates was not determined; however, this likely could have been attributed to the diagnostic challenges of and the definition used for CNS infections. Additional nursing education and implementation of an electronic health record (EHR) order set are future actions from these findings.

11:20am – 11:35am R **Quantifying critical care pharmacist interventions in critically ill patients** Olympia 2

Presenters: Morgan Daniel

TITLE: Quantifying critical care pharmacist interventions in critically ill patients

AUTHORS: Morgan Daniel, Sam Pournezhad, Marina Rabinovich, Van Bui, Rita Gayed

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Critical care pharmacists serve as integral members of multiprofessional teams in the management of critically ill patients. As medication experts, pharmacists play an important role in reducing medication errors, optimizing complex medication regimens, enhancing patient outcomes, reducing medication cost and waste, and lowering mortality. Despite the demonstrated benefit to patient care, many critically ill patients go without consistent critical care pharmacist coverage during their intensive care unit (ICU) stay. Pharmacist coverage is vital in critical care settings due to higher level of acuity and complexity of high-risk medication regimens. Increasing pharmacist-to-patient ratio in addition to pharmacists' evolving roles in non-patient care activities may lead to inconsistent critical care pharmacist coverage, which may impact patient care and prolong overall ICU length of stay. To extend the critical care pharmacist services across all ICUs, there is a need to quantify the different types of interventions that clinical pharmacists make in these critically ill patients daily. This study aims to quantify and characterize clinical pharmacists' interventions across all ICUs at a large academic medical center.

METHODOLOGY: This was a single center, retrospective chart review evaluating the critical care pharmacists' and residents' interventions across all ICUs, between July 1, 2023, and September 30, 2023. The interventions included were those made and documented in the electronic medical record by a critical care pharmacist or pharmacy resident for critically ill patients admitted to an ICU (medical, surgical, burn, cardiovascular, and neurology). Interventions entered by non-critical care pharmacists were excluded. Data were obtained through a workload report generated by the pharmacy department. The primary outcome was the number of interventions per day by critical care clinical pharmacists and residents across all ICUs. Secondary outcomes included subtypes of interventions, and percentage of high-risk medications of all medications intervened on (defined as antimicrobials, IV electrolytes, vasopressors, insulin infusion, anticoagulants, or IV medications used for the management of pain, agitation, and delirium).

RESULTS: Interventions were collected on 65 weekdays, with an average pharmacist-to-patient ratio of 1:24 and average pharmacist-to-team ratio of 1:2. Between 6 critical care pharmacists providing ICU coverage during the day, Monday through Friday, a total of 4,752 interventions were documented, with an average of 73 interventions per day across all ICUs. The most common type of interventions documented were neurology management (19.5%), followed by antimicrobial stewardship (14.9%), and therapeutic drug monitoring (7.5%). Every third medication intervened on was deemed to be a high-risk medication, with medications related to the management of pain, agitation, and delirium representing the number one category of high-risk medications intervened on by critical care pharmacists (12.5%).

CONCLUSIONS: Number of daily interventions, high pharmacist to team ratio, increasing demand of critical care pharmacists in the evenings, and additional daily responsibilities, all suggest need for expansion of critical care pharmacist services.

11:20am – 11:35am F **Effect of pharmacist driven MRSA PCR screening on vancomycin therapy duration in patients with CAP** Athena C

Presenters: Joe Norton

TITLE: Effect of pharmacist driven MRSA PCR screening on vancomycin therapy duration in patients with CAP

AUTHORS: Joe Norton, Rebecca Miller, Rosemary Garbowski, Jill McHugh

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Optimizing the use of antibiotics in the inpatient setting is a key element in reducing antibiotic overuse and the development of antibiotic resistant bacteria. MRSA PCR nasal swab testing has been associated with a high negative predictive value of over 95%, allowing it to be a valuable clinical utility in de-escalation of antibiotics in respiratory infections. The purpose of this study is to determine the effect of pharmacist driven MRSA PCR screening on total days of vancomycin therapy in patients diagnosed with CAP.

METHODOLOGY: This study was conducted as a pre-post evaluation of vancomycin therapy duration in patients with CAP. Slicer Dicer technology within EPIC® was utilized to identify patients diagnosed with CAP and who have received IV vancomycin. Vancomycin consults to pharmacy for respiratory infections allow the pharmacist to order a MRSA PCR screening, per protocol. Pharmacist re-education was provided to ensure all pharmacists were instructed to order screening and time spent on vancomycin monitoring was documented consistently. Nursing staff also received education regarding the importance of MRSA PCR screening to increase collection rates and reduce time to collection. This education was provided before the outlined post period. Pharmacists used MRSA PCR nasal swab results to make interventions for de-escalation of vancomycin therapy. Interventions were documented through EPIC ® electronic medical health record using pharmacy intervention tracking (iVents). Prewritten smart phrases were used within the iVents to record information that was collected. Data was collected from iVents and the patient electronic medical record.

RESULTS: In progress

CONCLUSIONS: In progress

11:20am – 11:35am T **Impact of Controller Inhalers in Inpatients Admitted for COPD Exacerbations** Athena B

Presenters: Mattie Kilpatrick

TITLE: Impact of Controller Inhalers in Inpatients Admitted for COPD Exacerbations

AUTHORS: Mattie Kilpatrick, Hannah Leschorn, Carrie Tilton, Heidi Berman, Bashar Staitieh, Amanda Van Prooyen

OBJECTIVE: Assess if controller inhalers added to the standard of care impacts outcomes for COPD exacerbations

SELF ASSESSMENT QUESTION: True or False: Based on the findings of this study, the addition of long-acting bronchodilator controller inhalers reduces the length of stay for inpatients admitted for a COPD exacerbation.

BACKGROUND: Annually, the Global Initiative for Chronic Obstructive Lung Disease (GOLD) publishes guidelines for the management of chronic obstructive pulmonary disease (COPD). The standard of care for COPD exacerbations per GOLD guidelines includes short-acting bronchodilators, systemic corticosteroids, and consideration of antibiotics when indicated. In addition to acute treatments, the 2023 GOLD Report states that initiation of controller inhalers (long-acting bronchodilators with or without inhaled corticosteroids) should be considered when the patient is stable, although there are no clinical studies evaluating inpatient utilization of controller inhalers during COPD exacerbations. Because the standard of care includes scheduled bronchodilators and systemic corticosteroids, the addition of long-acting controller inhalers may be considered duplicate therapy.

METHODOLOGY: This is a multicenter, retrospective chart review of adult patients admitted for COPD exacerbation at Emory Healthcare. Patients who received at least 1 dose of a systemic corticosteroid (prednisone 40 mg equivalent or higher) and at least 24 hours of scheduled short-acting bronchodilator(s) will be categorized into those who received formulary controller inhalers (fluticasone-salmeterol and/or tiotropium) and those who did not. Exclusion criteria include asthma, pulmonary fibrosis, direct ICU admission, pregnancy, prisoners, or received nebulized formoterol or budesonide during admission. The primary outcome is hospital length of stay. Secondary outcomes include mortality, ICU transfers, need for noninvasive or mechanical ventilation, time to readmission, time to readmission for COPD exacerbation, and number of “as needed” short-acting bronchodilator doses. Patient demographics and clinical outcomes will be compared using descriptive statistics. Continuous variables will be presented as averages with standard deviations and analyzed using a student t-test. Categorical variables will be summarized with frequencies and percentages and analyzed with a chi-square or Fischer’s exact test.

RESULTS: A total of 521 patients were included in the study, 290 received controller inhalers, 231 did not receive controller inhalers. The mean age of patients was 67 years old, 56.7% were female, and 68% of patients were Black or African American. More patients in the "controller inhaler" group were on home oxygen at admission (47.9% vs. 34.6%, p=0.003), had a higher number of COPD exacerbations within the prior 12 months (0.4 vs. 0.1, p <0.001), and were on home inhaler therapy compared to the those in the "no controller inhaler" group. Patients in the "no controller inhaler" group recieved a higher number of systemic corticosteroids, in prednisone equivalents (mean 552 mg in "controller inhaler group" vs. 711.6 mg in "no controller inhaler" group, p=0.048). In the "controller inhaler" group, 95.5% received fluticasone-salmeterol, 36.9% received tiotropium, and 31.4% received both fluticasone-salmeterol and tiotropium during the admission. There was no difference in the primary outcome between the groups (mean length of stay 5.5 days vs. 5.1 days, p=0.318). Patients in the "controller inhaler" group were readmitted more often within 30 days for any reason, within 90 days for any reason, and within 90 days for COPD compared to those in the "no controller inhaler" group.

CONCLUSIONS: Receipt on controller inhaler(s) during admission does not appear to significantly impact clinical outcomes including length of stay, escalation of care, or readmisions for COPD within 30 days. Study cohorts will

need to be controlled for confounders in order to make a final recommendation for the initiation or continuation of controller inhaler therapy for inpatients admitted for COPD exacerbations.

11:20am – 11:35am Y **Comparing clinical outcomes with Bu2Clo & Bu2Flu in allogeneic stem cell transplant patients** Athena A

Presenters: Brooke Lochridge

TITLE: Comparing clinical outcomes with Bu2Clo & Bu2Flu in allogeneic stem cell transplant patients

AUTHORS: Brooke Lochridge, K. Abernathy, D. Siler, M. Battiwalla, R. Matthews, L. Parsons

SELF ASSESSMENT QUESTION: True or False: Transient hepatoxicity and “pseudoengraftment” phenomenon commonly occurred in the Bu2Flu group.

BACKGROUND: Fludarabine is a purine analog commonly used in conditioning regimens for hematopoietic stem cell transplantation (HSCT). The use of fludarabine in reduced intensity conditioning (RIC) regimens stems from a phase 3 randomized trial that compared fludarabine-containing RIC regimens versus myeloablative conditioning (MAC) regimens in patients with acute myeloid leukemia (AML) or myelodysplastic syndromes (MDS). This trial showed that fludarabine-containing regimens could be effective for patients that are not candidates for MAC regimens. Over the past few years, fludarabine has been on the Food & Drug Administration’s (FDA) drug shortage list. Due to the impact of this shortage, National Comprehensive Cancer Network (NCCN) guidelines provide alternative RIC regimens without fludarabine. The regimens include: pentostatin-based, clofarabine-based, cladribine-based, and cyclophosphamide-based regimens. Data supporting these regimens are limited single arm studies with small patient populations. The CLORIC trial evaluated the use of a clofarabine-busulfan RIC regimen (CloB2A2) for HSCT. CloB2A2 was associated with a 63% overall survival, 57% leukemia-free survival, 40% relapse, and 3% non-relapse mortality all at 1 year. This trial concluded that CloB2A2 resulted in full engraftment in all patients and was well tolerated. This study expands on current literature and provides a retrospective comparison of fludarabine and clofarabine containing RIC regimens.

METHODOLOGY: This single center, Institutional Review Board approved, retrospective chart review included adult patients who underwent RIC with either busulfan-clofarabine (Bu2Clo) or busulfan-fludarabine (Bu2Flu) HSCT at TriStar Centennial Medical Center from January 1st, 2022, through December 31st, 2022. Exclusion criteria consisted of patients less than 18 years old or if patients received post-transplant cyclophosphamide (PTCy). A p-value of less than 0.05 will be used to detect statistically significant differences in outcomes. Descriptive statistics were used for baseline characteristics. A non-inferiority test was used to test for equivalency between Bu2Clo and Bu2Flu in the primary outcome. Data was collected from the electronic medical record (EMR).

RESULTS: TBD

CONCLUSIONS: In summary, this comparative analysis provides additional evidence for the use of clofarabine for RIC allogenic transplant patients when fludarabine is unavailable. Future directions include assessing the timing, role, and impact of DLI post transplant

11:20am – 11:35am P **Evaluation of Opioid Use and Complications after ERAS Protocol Implementation in Joint Arthroplasty** Athena I

Presenters: Morgan Thomas

TITLE: Evaluation of Opioid Use and Complications after ERAS Protocol Implementation in Joint Arthroplasty

AUTHORS: Morgan Thomas, Breanna Carter, Megan Barber

OBJECTIVE: Compare total opioid use and post-operative complications for elective total hip or knee arthroplasty before and after the implementation of a multimodal, multidisciplinary ERAS protocol.

SELF ASSESSMENT QUESTION: True or False. Opioid administration post-operatively may cause nausea, respiratory depression, and urinary retention.

BACKGROUND: Hospital admissions for total knee arthroplasty (TKA) and total hip arthroplasty (THA) are frequently prolonged due to inadequate pain control. The Enhanced Recovery After Surgery (ERAS) Society was founded with a goal to develop multimodal and multidisciplinary programs that optimize recovery and minimize complications. Despite widespread use of ERAS protocols across other surgical specialties, literature supporting the implementation of ERAS protocols in orthopedic surgery is limited. This study aimed to compare opioid use, rate of same day surgery, and post-operative complications for elective total hip or knee arthroplasty before and after the implementation of an ERAS protocol.

METHODOLOGY: Eligible patients were those 18 years or older who underwent primary elective total hip or knee arthroplasty at the Baroness Erlanger Hospital between the dates of July 1, 2022 - December 31, 2022 and July 1, 2023 – December 31, 2023. Patients were excluded if they presented for emergency or revision surgery or have a known sensitivity to any drug in the protocol. Information regarding the administration of opioids and ERAS protocol medications will be recorded. The primary outcome was perioperative opioid use, defined as morphine milligram equivalents (MME) administered during each phase of surgical care through post-operative day 5. Secondary outcomes included the rate of same day surgery, rate of ERAS protocol adherence, time to first physical therapy ambulation, and the incidence of post-operative complications including nausea and vomiting, hypotension, and urinary retention.

RESULTS: The median total opioid use (MME) for hospital admission from pre-operative through post-operative day 5 was higher for Pre-ERAS protocol patients compared to Post-ERAS patients (48.8 vs. 38.8, p-value=0.0084). The rate of same day surgery was not statisiticially significant (37.5% vs. 44.8%, p-value=0.3046) nor was median total length of stay (27 hours vs. 26.2 hours, p-value=0.1296). There was no staticially significant difference in rates of post-operative hypotension, nausea/vomiting, or urinary retention. There was no statisically significant difference in median time to first ambulation with physical therapy (3.2 hours vs. 2.8 hours, p-value=0.0638). Total ERAS medication protocol adherence was 82.97%.

CONCLUSIONS: The implementation of the ERAS protocol led to a decrease in total opioid use for the duration of hospital stay after elective total knee and hip arthroplasties. Further evaluations should be performed to assess the role that multimodal agents on ERAS protocols play in reducing hospital costs, improving pain control, decreasing adverse events, and decreasing total hospital length of stay.

11:40am – 11:55am C **Impact of Pharmacist Guided Management and Optimization of GDMT in Primary Care Patients with HFrEF** Parthenon 2

Presenters: Olivia Mast

TITLE: Impact of Pharmacist Guided Management and Optimization of Guideline-Directed Medical Therapy (GDMT) in Primary Care Patients with Heart Failure with Reduced Ejection Fraction (HFrEF)

AUTHORS: Olivia G. Mast, Jon E. Folstad, Allison E. Schmitz, Camille P. Robinette, Anita A. Kelkar

OBJECTIVE: To evaluate the impact of pharmacists in optimization of GDMT for HFrEF in the primary care setting.

SELF ASSESSMENT QUESTION: True or False: Mortality can be significantly reduced in HFrEF when all 4 GDMT classes are used at their target doses.

BACKGROUND: Heart Failure (HF) is a clinical syndrome causing significant morbidity and mortality in the United States. Heart failure with reduced ejection fraction (HFrEF) can be classified as a left ventricular ejection fraction (LVEF) of less than or equal to 40%. In terms of morbidity and mortality reduction, guideline directed medical therapy (GDMT) has demonstrated the most significant impact in patients who have HFrEF.

Primary care Clinical Pharmacist Practitioners (CPPs) within the Salisbury VA Health Care System (SVAHCS) began managing low complexity HFrEF patients in January 2023 on a limited basis. Focus of the recommendations were limited to a single medication class rather than comprehensive management of GDMT. The purpose of this performance improvement project is to evaluate the impact of pharmacist involvement in optimizing GDMT for HFrEF patients in the primary care setting.

METHODOLOGY: This was a single-site, prospective, quality improvement project. A chart review was completed for patients with HFrEF whose GDMT was not optimized. The HF Academic Detailing dashboard was used to identify patients. Patients with primary care visits between January 1, 2024 and February 29, 2024 from the Salisbury and Charlotte locations of the SVAHCS will be included. The primary outcome is the proportion of patients with an increase in the number of prescribed or up-titrated GDMT by the primary care provider (PCP). Decreases in the number of GDMT classes, or decrease in dosages due to patient intolerance, were not considered to count against the outcome and were null. Secondary outcomes evaluated included the average number of GDMT changes (either initiation or up-titration) recommended by the pharmacist per patient, the average number of pharmacist recommendations accepted by the PCP, and the average number of GDMT changes (either initiation or up-titration) made by the PCP without recommendation from the pharmacist. All outcomes were assessed within 30 days of the primary care visit.

RESULTS: Chart reviews were completed for 16 patients, of these, 4 patients canceled or no-showed their appointments and 12 were seen by their PCP. Of those 12 patients, 1 patient's PCP (8.3%) accepted the pharmacists GDMT recommendations and the other 11 patient's PCPs (91.7%) did not accept GDMT recommendations. There were 19 total GDMT recommendations made by the pharmacist for the 12 patients who saw their PCP, and there were an average of 1.5 GDMT recommendations per patient. The 1 patient with recommendations accepted had 3 GDMT medications initiated; the PCP recommendation acceptance rate was 15.8% (3/19). Of the 11 patients with no changes, 6 patient's (54.5%) PCPs deferred treatment decisions to VA cardiology. There were 0 GDMT changes made by the PCP without recommendation from the pharmacist.

CONCLUSIONS: There was a poor intervention acceptance rate from PCPs in regards to initiating pharmacist GDMT recommendations, and the majority deferred treatment decisions to VA cardiology. However, in the one case where pharmacist recommendations were accepted, all of the recommendations were accepted, suggesting that PCPs may take an all-or-nothing approach to accepting pharmacist recommendations. Considering that there were 0 GDMT changes made by the PCP outside of pharmacist recommendation, it may be possible that pharmacist involvement in HFrEF care could lead to optimized GDMT. Some limitations include significant exclusion criteria leading to a smaller patient population, inability to include a control group to

compare, and difficulty providing follow-up with patients due to the nature of the project. Future considerations include direct management and prescription of GDMT by the PACT CPP thus streamlining the process, PCP education, and trial of other methods to provide pharmacist recommendations to PCPs.

11:40am – 11:55am ' **Evaluation of Hospital Pharmacy Pricing and Utilization Trends: Prediction versus Reality** Athena I

Presenters: Ricky Mareus

TITLE: Evaluation of Hospital Pharmacy Pricing and Utilization Trends: Prediction versus Reality
AUTHORS: Ricky Mareus, Grant Teague
OBJECTIVE: Discuss the overall accuracy of the Inflation/Deflation report
SELF ASSESSMENT QUESTION:
BACKGROUND: Healthcare systems constantly face financial and operational challenges. The COVID-19 pandemic resulted in a 10.3% increase in healthcare spending in 2020. In 2022, prescription drug expenditure grew 9.4% to a total of $633.5 billion. Staff and drug shortages, coupled with rising inflation, have been unfavorable to health systems' finances. The pharmacy team at HealthTrust provides clinical support and tools to health-system leaders to maximize savings and efficiencies. One of these tools is a bi-annual Inflation/Deflation report designed to assist health-systems budget and forecast pharmaceutical expenditures for the upcoming year. The report considers evolving market dynamics, clinical updates, and HealthTrust contracting activities to project impact on both price and utilization. The purpose of this retrospective analysis is to assess the accuracy of HealthTrust's bi-annual Inflation/Deflation report to provide a more effective budgeting analysis for health system pharmacy leaders.
METHODOLOGY: This study conducted a retrospective analysis to assess the predictive accuracy of HealthTrust's pharmacy budget projections spanning from 2020 to 2024. The assessment utilized pharmaceutical distributor data feeds which included pharmacy member invoice data. A proprietary third-party database was employed as the foundational system for managing drug identification. Within this proprietary system, various factors such as new National Drug Code availability (NDC), wholesale acquisition cost (WAC) changes, HealthTrust contract status, and loss of brand name drug patents were analyzed. The primary objective is to quantify the overall accuracy of the yearly projections. Secondary objectives include quantifying the accuracy of the yearly projections when considering influential factors such as WAC changes, brand name drug patent loss, alterations in contracting opportunities, and the introduction of novel NDCs to the market.
RESULTS: In Progress
CONCLUSIONS: In Progress

11:40am – 11:55am M **Impact of a Pharmacist-Led Weight Loss Medication Management Service in a Veteran Community** Athena H

Presenters: Diana Rojas-Chavez

TITLE: Impact of a Pharmacist-Led Weight Loss Medication Management Service in a Veteran Community

AUTHORS: Diana C Rojas-Chavez, Fayza Griffin, Brittney Howard

OBJECTIVE: To describe the impact of CPP-led weight loss medication management service in a Veteran community.

SELF ASSESSMENT QUESTION: What impact can a CPP-led weight loss clinic have on Veterans with obesity?

BACKGROUND: Studies have shown that over 75% of the Veteran population are considered either overweight or obese. Within the Fayetteville North Carolina Veterans Affairs Coastal Health Care System (FNCVACHCS), approximately one-third of the Veterans with an active weight loss prescription have reported weight gain. The purpose of this quality improvement initiative was to illustrate the benefit of a pharmacist-led weight loss clinic in a Veteran population in the FNCVACHCS.

METHODOLOGY: This prospective, cohort analysis, quality improvement initiative was exempt from Institutional Review Board (IRB) approval. Veterans within the FNCVACHCS interested in a medication approved by the Food and Drug Administration (FDA) for weight loss and enrolled in the 12-week comprehensive management program entitled MOVE! Program were included. Clinical pharmacist practitioners (CPP) monitored weight and managed medication at 4 week intervals. From August 1, 2023, to November 1, 2023, a comprehensive chart review was completed documenting the medication initiated, baseline weight, and weights at each 4 week follow up.

RESULTS: Forty-one Veterans were screened for possible inclusion. Four Veterans were included in the data analysis. Average baseline weight was 222.5 pounds. Average weight loss was 7.8 pounds resulting in a 3.5% average weight reduction at 3 months. Weight loss ranged from 2% to 4.8%. Mean weight change at 4 weeks was -6 pounds. All four Veterans included in the data analysis had at least one follow-up (week 4). One Veteran completed a second follow-up (week 8).

CONCLUSIONS: Veteran enrollment and follow-up were significantly impacted by federal contract changes and prolonged manufacturer backorders. Despite logistical constraints, some benefit of CPP intervention was demonstrated with regard to increased efficacy with weight loss medications. A formal CPP-led weight loss medication management clinic may allow for close follow-up, decrease primary care clinic burden, and aid in initiation of alternative therapies when supply issues arise. Overall, differences in weight documentation, follow up times, and comprehensive weight loss class requirements fortify the need for a CPP dedicated to weight loss medication management to optimize outcomes.

11:40am – 11:55am M **Use of IV Cetirizine in Place of IV Diphenhydramine for the Prevention of Hypersensitivity Reactions** Athena G

Presenters: Kaleigh Mikolichek

TITLE: Use of IV Cetirizine in Place of IV Diphenhydramine for the Prevention of Hypersensitivity Reactions

AUTHORS: Kaleigh Mikolichek, Pamela Vega Rios, Ginna Tucker, Andre Harvin

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Nearly all systemic oncology agents used for cancer treatment are associated with the potential for hypersensitivity reaction (HSR). Chemotherapeutic agents can cause sensitivity reactions in approximately 5% of patients, however, taxanes and monoclonal antibodies have a higher risk. Reactions occur in 30-41% of patients that receive paclitaxel and in up to 77% of patients receiving rituximab, typically occurring with the first or second dose. Guidelines recommend pharmacological prophylaxis with a corticosteroid, antihistamine, and H2 antagonist given 30-60 minutes prior to administration. Intravenous (IV) diphenhydramine is the most common antihistamine for prophylaxis. However, this is an off-label use with many adverse events including sedation, dizziness, disturbed coordination, and restless leg syndrome. IV cetirizine is another antihistamine option that entered the market in 2019. Cetirizine reportedly has lower concern for adverse events compared to diphenhydramine. The purpose of this project is to evaluate the impact of a pharmacist-led auto-substitution protocol on the incidence of hypersensitivity reaction rates in patients receiving paclitaxel or rituximab infusions.

METHODOLOGY: This study is a single-center, IRB-reviewed (determined exempt), pre- and post-implementation study conducted at Cone Health Cancer Center at Wesley Long. Patients were included in this study if they were at least 18 years old receiving their first or second dose of either rituximab or paclitaxel therapy. Exclusion criteria included hypersensitivity to either diphenhydramine or cetirizine. Chart review was conducted for pre- and post-implementation. The primary objective of this study was the incidence of hypersensitivity reaction to rituximab or paclitaxel therapy. Secondary objectives included hypersensitivity grade and reaction type, incidence of adverse events to IV diphenhydramine or cetirizine, and cost. Chi-squared and descriptive statistics were used to analyze data, as appropriate.

RESULTS: This pre-post study included 149 patients, 71 in the pre-implementation group and 78 in the post-implementation group. The percentage of patients with a hypersensitivity reaction was significantly lower in the post-implementation group (19.7% vs. 5.1% RR 3.84, 95%CI). The most reported hypersensitivity reactions were respiratory related and fever/chills in the pre-implementation group and all patients with hypersensitivity reactions in the post-implementation group experienced hot flush related events. There was no correlation between diphenhydramine and cetirizine in terms of hypersensitivity grade of infusion reactions. There were no documented allergies or adverse events to either antihistamine, however the nursing staff and providers noted that IV cetirizine was less sedating than diphenhydramine and was preferred by the patients and staff.

CONCLUSIONS: Implementation of pharmacist-led auto-substitution protocol did not lead to an increased incidence of hypersensitivity reaction rates in patients receiving paclitaxel or rituximab infusions. This study found that fewer patients that received cetirizine had hypersensitivity reactions to both rituximab and paclitaxel compared to those who received diphenhydramine.

11:40am – 11:55am R **Evaluation of Diabetic Ketoacidosis (DKA) Management in a Community Hospital** Parthenon 1

Presenters: Matthew Hadley

TITLE: Evaluation of Diabetic Ketoacidosis (DKA) Management in a Community Hospital

AUTHORS: C. Matthew Hadley, Pharm.D.; James Miracle, Pharm.D., BCEMP; W. Creed Carleton, Pharm.D.

OBJECTIVE: Evaluate the appropriate use of subcutaneous long-acting insulin in the treatment of DKA.

SELF ASSESSMENT QUESTION:

BACKGROUND: Diabetic ketoacidosis (DKA) is a life-threatening complication that affects patients with Type I and Type II diabetes. Pharmacotherapy must be timely and effective to manage DKA and prevent its reoccurrence while in the hospital. Early administration of long-acting subcutaneous insulin (i.e., within 1 to 4 hours) in patients actively receiving an insulin infusion has been shown to reduce the incidence of rebound DKA. The purpose of this study was to assess the incidence of DKA reoccurrence in patients who received long-acting insulin before discontinuation of the insulin infusion versus those that did not.

METHODOLOGY: This single center, retrospective chart review was approved by the institutional review board at a community hospital. Patients admitted to the hospital between July 2022 and July 2023 with a diagnosis of DKA who received an insulin infusion for at least two hours met inclusion criteria. Patients were excluded for pregnancy, incarcerated status, on a set-rate insulin infusion for treatment of hypertriglyceridemia, or 19 years of age or younger. Common baseline demographics were collected and pertinent laboratory values (serum blood glucose, arterial pH, presence of ketones, etc.) were obtained upon admission to the hospital to confirm DKA. The primary endpoint assessed was the incidence of DKA reoccurrence during admission. Secondary endpoints were incidence of hypoglycemia while on insulin infusion, duration of insulin infusion, length of intensive care unit stay, readmission rates, type of transitioning long-acting insulin, and all-cause mortality. Appropriate statistical tests were used to assess collected data.

RESULTS: The group receiving long-acting subcutaneous insulin overlap included 36 patients, while the patient group not receiving an overlap of long-acting subcutaneous insulin included 104 patients. The without insulin overlap group had 4 patients (4%) have DKA recurrence versus 2 patients (5.5%) for the insulin overlap group (95% confidence interval 0.127 – 10.76). A Fisher’s exact test achieved a p-value of 0.65 which failed to meet statistical significance of p-value less than 0.05. Even though the insulin overlap group had less patients return to DKA, the groups were unevenly matched as the study did not reach power.

CONCLUSIONS: The study populations had well balanced characteristics, but the small sample size did not achieve power. Therefore, this evaluation did not demonstrate with statistical significance that insulin overlap within a 1-to-4-hour window decreased the incidence of DKA recurrence. There was also no difference observed for other patient centered outcomes. Patients that received longer durations of insulin infusions were significantly more likely to receive overlapping insulin administration.

11:40am – 11:55am R **Evaluation of hypotension related to the order of vasopressor discontinuation** Olympia 2

Presenters: Brian Hairston

TITLE: Evaluation of hypotension related to the order of vasopressor discontinuation

AUTHORS: Brian Hairston, Emily Johnston

OBJECTIVE: Review of sepsis, septic shock, and the use of vasopressors to maintain adequate hemodynamics; discuss current literature for the hemodynamic effect of order of discontinuation for norepinephrine and vasopressin; evaluate the outcomes for the order of discontinuation for these agents

SELF ASSESSMENT QUESTION: True or False? There was increased mortality in patients who had norepinephrine discontinued first.

BACKGROUND: Septic shock is a subset of sepsis associated with an approximate ten percent increase in mortality compared to patients with sepsis. Per the Surviving Sepsis Campaign, norepinephrine is the vasopressor of choice for patients with septic shock. Vasopressin is often used as a second agent that adds vasoconstriction without further adrenergic activation. While often used together, there is little guidance currently on which agent should be discontinued first. This study seeks to investigate whether order of discontinuation results in greater rates of hypotension.

METHODOLOGY: This study is a single-center, retrospective chart review. Medical intensive care unit (ICU) patients from 8/1/2018 to 8/31/2023 were included if they were diagnosed with septic shock and received both norepinephrine and vasopressin. Patients will be excluded for age less than 18-years-old, incarceration, pregnancy, mortality while on both norepinephrine and vasopressin, mortality within 48 hours of ICU admission, transfer from an outside facility, or if placed on hospice or had care withdrawn. The primary objective is the incidence of clinically significant hypotension, defined as one of the following: mean arterial pressure < 60 mmHg, reinitiation of the discontinued agent, an increase in the dose of the remaining agent, or administration of a fluid bolus. Secondary objectives will include hospital mortality, time to hypotension, and hospital and ICU length of stay.

RESULTS: 125 patients were included, 48 in the norepinephrine discontinued first (NDF) group vs. 77 in the vasopressin discontinued first (VDF) group. The primary outcome of clinically significant hypotension occured in 69% of the NDF group vs. 62% of the VDF group (RR 0.84; 95% CI, 0.51 - 1.36). Mortality was not statistically significant between the groups (HR 0.84, 95% CI 0.54 - 1.32), while hospital length of stay (23.2 days vs. 13.8 days, $p = 0.002$) and ICU length of stay (14.0 days vs. 5.8 days, $p = 0.001$) were significantly shorter in the VDF group.

CONCLUSIONS: There is no significant difference in hypotension related to the order of vasopressor discontinuation, while having vasopressin discontinued first was associated with decreased hospital and ICU length of stay.

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11:40am – 11:55am R **The Effect of Atypical Antipsychotics and Dexmedetomidine on Propofol Rates in Ventilated Patients** Olympia 1

Presenters: Veronica Garrison

TITLE: The Effect of Atypical Antipsychotics and Dexmedetomidine on Propofol Rates in Ventilated Patients

AUTHORS: Veronica Garrison, Layne Reihart, Cortney Dodson, Matthew Varner

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Critically ill patients often require sedatives during mechanical ventilation to prevent agitation-related harm and improve compliance with mechanical ventilation. According to the 2018 Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption, both propofol and dexmedetomidine are preferred agents to reduce the duration of mechanical ventilation and presence of delirium. In practice, dexmedetomidine is often used as an adjunctive therapy to allow for the weaning of propofol to a lighter level of sedation prior to extubation. At our institution, atypical antipsychotics are also frequently used for this purpose. This study aimed to compare the effects of atypical antipsychotics including quetiapine, olanzapine, and risperidone to dexmedetomidine on the amount of continuous infusion propofol used in intensive care settings.

METHODOLOGY: This retrospective cohort study included patients admitted to intensive care units at Prisma Health Richland, Baptist, and Baptist Parkridge campuses between February 2021 and August 2023. To be included, patients must have received at least 48 hours of continuous infusion propofol prior to the addition of dexmedetomidine or an atypical antipsychotic. Atypical antipsychotics included must have been initiated as: quetiapine 150mg/day or less, olanzapine 10mg/day or less, or risperidone 1mg/day or less. Patients who received both dexmedetomidine and atypical antipsychotics within any 24-hour period during propofol infusion, were admitted to the trauma or neurosurgery service, were palliatively extubated, or received any antipsychotic for a psychiatric diagnosis prior to admission were excluded. The primary objective of this study was to determine the percent reduction in propofol rate 48 hours after atypical antipsychotic or dexmedetomidine initiation. Secondary outcomes included percent reduction in propofol rate at both 24 and 72 hours after atypical antipsychotic or dexmedetomidine initiation, ICU length of stay, and duration of mechanical ventilation. Chi-square and t-tests were used to analyze these results.

RESULTS: TBD

CONCLUSIONS: TBD

11:40am – 11:55am F **An Evaluation of Outcomes and Patient Specific Risk Factors in Post-Viral Bacterial Pneumonia** Athena C

Presenters: Jason Boone

TITLE: An Evaluation of Outcomes and Patient Specific Risk Factors in Post-Viral Bacterial Pneumonia

AUTHORS: Jason Boone, Rachel Musgrove, Geneen Gibson

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Post-viral bacterial pneumonias represent a potentially serious complication of viral upper respiratory illnesses. Common viral pathogens include coronavirus (SARS-CoV-2), influenza and respiratory syncytial virus (RSV). While research has been done into risk factors for developing pneumonia, data is limited for determining which patient subpopulations are most at risk for developing post-viral secondary infections. This research aims to evaluate clinical outcomes and risk factors for developing post-viral secondary bacterial infections in admitted patients while determining differences in risk factors, severity and length of stay across patient subpopulations.

METHODOLOGY: This study is a retrospective, observational chart review to evaluate adult patients with a diagnosis of viral pneumonia based on a respiratory panel. A computer-generated list was used to identify patients with a diagnosis of viral pneumonia from August 2022 to August 2023. Subjects were then reviewed for study inclusion or exclusion based on defined criteria, and then sorted into comparator groups depending on if they had a bacterial pneumonia via MD diagnosis confirmed through either a chest x-ray or a positive bacterial culture collected within 6-14 days of the respiratory panel.

Data was collected and analyzed using the Microsoft Office Excel program with statistical analysis performed by the Statistical Product and Service Solutions (SPSS) program. Patient data was pulled from the electronic health record according to defined searches. A logistic regression analysis was used to compare risk factors across the recorded patients. Additionally, a chi-square analysis was used to analyze and compare the differences between nominal data while a t-test analysis was used to analyze and compare the differences between interval data. A p-value of less than 0.05 was considered statistically significant.

RESULTS: A total of 375 patients were screened for inclusion after narrowing the parameters of our health system report. After screening, 65 patients were excluded for prior or concurrent bacterial pneumonias. 185 patients had a length of stay of at least 6 days to access the development of a secondary bacterial pneumonia with 22 incidents of secondary bacterial pneumonias in this group.

A chi square analysis showed significant association between the composite outcome endpoint and secondary bacterial pneumonia (P, 0.015) which was validated independently through each endpoint of in-hospital mortality (P, 0.01), admission to a critical care unit (P, 0.01), and intubation (P, 0.001). After analysis of risk factors for developing a secondary bacterial pneumonia by logistic regression, heart failure was associated with developing a secondary bacterial pneumonia (P, 0.026). Chronic obstructive pulmonary disease (COPD) (P, 0.149), diabetes (P, 0.607), immunosuppression (P, 0.623), and antiviral exposure (P, 0.091) did not show significance to any association found to developing a secondary bacterial pneumonia.

CONCLUSIONS: Outcomes explored in this study support that a patient with a post-viral bacterial pneumonia is associated with worse outcomes across a composite of increased mortality, increased admission to a critical care unit, increased intubation, and increased length of stay. This study also aimed to predict the patient specific risk factors associated with these secondary bacterial pneumonias. The reported findings showed that heart failure patients have an increased propensity for developing these infections while other potential disease states such

as COPD and diabetes did not. Various reasons exist to support this result from impairment of blood circulation to fluid collection in the lungs.

11:40am – 11:55am F **Outcomes of obese patients treated with cefepime for Gram-negative respiratory infections** Athena D

Presenters: Dylan Howard

TITLE: Outcomes of obese patients treated with cefepime for Gram-negative respiratory infections
AUTHORS: Dylan Howard, Alisha Terry, Sofiya Paciotti, Amy Taylor, Eric Shaw
OBJECTIVE: Discuss dosing differences of cefepime between obese and non-obese patients.
SELF ASSESSMENT QUESTION: In what cases does ACCP recommend extended infusions in obese patients?
BACKGROUND: In 2017, the American College of Clinical Pharmacy (ACCP) published guidance for antibiotic dosing for obese (BMI greater than or equal to 30) patients recommending cefepime dosing up to two grams every eight hours as an extended infusion over 4 hours. In 2022, ACCP provided further clarification to their original recommendation preferring extended infusions in obese patients who are critically ill or have a creatinine clearance greater than 80 mL/min. Currently, our facility doses cefepime as a two gram loading dose, followed by a one gram maintenance dose every 6 hours infused over 30 minutes with adjustments made for renal function. Since our practice currently differs compared to the aforementioned recommendation, we believe further investigation is warranted into the clinical outcomes of obese patients with Gram-negative respiratory infections.
METHODOLOGY: Medical records from January 2015 to September 2023 of adult patients who received at least 72 hours of cefepime treatment for a susceptible Gram-negative bacterial pneumonia were assessed. Patients were excluded if they were pregnant, incarcerated, had a history of pneumonia from a cefepime resistant organism, suspicion of CNS infection, or polymicrobial pneumonia. The primary outcome was treatment failure, defined by meeting one or more of the following criteria: change to antibiotic indicated for multidrug resistant Gram-negative bacterial infections, persistent or new onset temperature of ≥ 100.4 degrees Fahrenheit, re-infection with the same pathogen within 90 days, or sustained increase in supplemental oxygen for at least 24 hours. Secondary outcomes were antibiotic days (cefepime, broad-spectrum, total), length of stay, incidence of Pseudomonal pneumonia, 90-day readmission, in-hospital mortality, and initial renal dosing of cefepime per institutional guidance.
RESULTS: Of the 426 patients screened, 34 obese and 42 non-obese met inclusion criteria. In the baseline characteristics, there were fewer obese patients who had active cancer (3% vs. 19%, $p = 0.03$) but, the obese group accounted for more diabetics (71% vs. 36%, $p = 0.002$). There was no statistically significant difference between the obese and non-obese groups in treatment failure (65% vs. 55%, $p = 0.38$) nor in any of the secondary outcomes.
CONCLUSIONS: While some differences were detected in baseline characteristics, there were no statistically significant differences in any of the primary or secondary outcomes. There were, however, several limitations to this study such as the following: strict inclusion criteria, utilization of a convenience sample, retrospective nature of the study, and being a single center. In conclusion, while the data trended towards a possible increase in failure rates in obese patients, this was not statistically significant.

11:40am – 11:55am T **Nephrotoxin Exposure and Subsequent Development of Acute Kidney Injury (AKI) in Adult Patients** Athena B

Presenters: Sari Cohen

Title: Nephrotoxin Exposure and Subsequent Development of Acute Kidney Injury (AKI) in Adult Patients

Authors: Sari Cohen, Kelsey Tuttle, Jacob Edmund

Background: AKI commonly occurs during hospitalization and while the cause is often multifactorial, nephrotoxic drug exposure is a major risk factor. Patients who recover from AKI remain at an increased risk of chronic kidney disease, cardiovascular disease, and death, which prompts the need to proactively identify such patients at an early stage and provide them with timely preventative measures. The Nephrotoxic Injury Negated by Just-in Time Action (NINJA) program was designed to utilize the electronic health record (EHR) to identify pediatric patients with high exposure to nephrotoxic medications with the goal of reducing rates of nephrotoxic medication associated AKI. In a prospective, multi-center quality improvement initiative in hospitalized children, this program resulted in a significant decrease in nephrotoxic medication associated AKI. The application of this program has not yet been validated in adults. A retrospective cohort study of non-intensive care unit (ICU) adult patients was conducted at the University of Iowa Hospital and reported a nephrotoxic medication associated AKI rate of 26% utilizing the NINJA program's list of nephrotoxic agents. The aim of this study was to identify the rate of AKI secondary to high nephrotoxic medication exposure at East Carolina University (ECU) Health Medical Center in non-ICU adult patients.

Methods This was a retrospective cohort study at ECU Health Medical Center. Adult non-ICU patients admitted from January 1, 2023, to June 27, 2023, were identified for analysis and the EHR was utilized to evaluate patient records for all endpoints. AKI development rates were compared between patients who had high nephrotoxic exposure (utilizing the NINJA program's list of nephrotoxic agents) to patients who did not have high nephrotoxic exposure. Serum creatinine was evaluated for 48 hours after a high nephrotoxic exposure (or up to 7 days for certain medications with a prolonged half-life) to identify if nephrotoxic medication associated AKI developed.

Results: The study populations were comparable except patients were younger, had a higher baseline estimated glomerular filtration rate, and lower baseline serum creatinine in the high nephrotoxic exposure group versus the control group. Comorbidities were well balanced between the groups except patients in the control group had a higher incidence of coronary artery disease. The three most common nephrotoxic agents utilized were vancomycin, piperacillin/tazobactam, and iohexol. AKI occurred in 13 patients (13%) in the high nephrotoxic exposure group and in 7 patients (7%) in the control group (P=0.24). The median length of stay was 7 days (interquartile range, 4-14) in the high nephrotoxic exposure group and 5 days (interquartile range, 3-8) in the control group (P<0.0001). No statistically significant difference was found between groups for AKI stage, 30-day mortality, or incidence of nephrotoxic exposure in patients reviewed by pharmacists versus those without pharmacist review.

Conclusion: Rates of AKI were higher among patients who had high nephrotoxic exposure versus those who did not have high nephrotoxic exposure, but this difference was not statistically significant. Therefore, implementing the NINJA program or a more proactive review would not be valuable to our patient population at ECU Health Medical to help reduce nephrotoxic medication associated AKI.

Contact: Sari.Cohen@ecuhealth.org

11:40am – 11:55am Y **Clinical Impact of PPI Therapy in Combination with Certain TKIs in Adult Patients with CML** Athena A

Presenters: Matthew Zakhari

TITLE: Clinical Impact of PPI Therapy in Combination with Certain TKIs in Adult Patients with CML

AUTHORS: Matthew Zakhari, Natalie Hurst, Stephen Aiken, Robert Heidel

OBJECTIVE: Identify if there is a difference in BCR::ABL1 levels between the TKI and TKI-PPI groups.

SELF ASSESSMENT QUESTION: There is a difference in BCR::ABL1 levels between the TKI and TKI-PP groups at which month?

BACKGROUND: Bosutinib, dasatinib, and nilotinib are all listed as Category 1 Recommendations in the National Comprehensive Cancer Network (NCCN) Guidelines as both first-line and subsequent therapy options for CML. Providers often prescribe these tyrosine kinase inhibitors (TKI's) concomitantly with proton pump inhibitors (PPI's). Pharmacokinetic studies have demonstrated that concomitant administration of certain TKI's, such as those mentioned about, with a PPI results in lower TKI plasma concentrations which is likely due to an interaction resulting in impaired TKI absorption. While pharmacokinetic data has demonstrated a reduction in TKI plasma concentrations, real-world application of this in terms of clinical outcomes has been inadequately studied.

METHODOLOGY: This study is a retrospective chart review of patients 18 years and older who have been treated with bosutinib, dasatinib, or nilotinib therapy during the study duration of January 1, 2018 to September 1, 2022. This study was conducted at a single center (University of Tennessee Medical Center in Knoxville, TN) and included 47 total patients. Patients were separated into two groups: those treated with the TKI's mentioned above only (TKI cohort) and those receiving a TKI concomitantly with a PPI (TKI-PPI cohort). Data was evaluated to assess early treatment response to TKI therapy as assessed by BCR::ABL1 levels at 3, 6, and 12 months in the TKI and TKI-PPI cohorts. Secondary endpoints include the rate of discontinuation of TKI therapy, time to TKI discontinuation, progression to accelerated or blast phase CML, mortality, dose reductions due to adverse events/tolerability, and discontinuation due to adverse events/tolerability.

RESULTS: BCR::ABL1 level at 3 months was 6.25% in the TKI cohort and 0.36% in the TKI-PPI cohort (p=0.21). BCR::ABL1 level at 6 months was 0.10% in the TKI cohort and 0.01% in the TKI-PPI cohort (p=0.22). BCR::ABL1 level at 12 months was 0.03% in the TKI cohort and 0.02% in the TKI-PPI cohort (p=0.56). Rate of TKI discontinuation was 19.4% in the TKI cohort vs. 25% in the TKI-PPI cohort (p=0.72). Time to TKI discontinuation was 854 days in the TKI cohort vs. 1371 days in the TKI-PPI cohort (p= 0.28). Dose reductions due to adverse events or tolerability occurred in 12 patients in the TKI cohort vs. 8 patients in the TKI-PPI cohort (p=0.46). Discontinuation due to adverse events or tolerability occurred in 5 patients in the TKI cohort vs. 2 patients in the TKI-PPI cohort (p=0.24). 0% mortality within 1 year of TKI initiation observed in both cohorts.

CONCLUSIONS: The interaction between PPIs and the studied TKIs may not impact efficacy when treating patients with CML.

11:40am – 11:55am A **Impact of the Elimination of an Employer-Sponsored Copay Reduction Program on Beneficiary Glycemic Control** Athena J

Presenters: Megan Stevens

TITLE: Impact of the Elimination of an Employer-Sponsored Health Program on Beneficiary Glycemic Control

AUTHORS: Megan Stevens, Anna Everhart, Angie Roark Lynch, Andrew Bundeff, Danielle Baker

OBJECTIVE: To determine the impact on beneficiary glycemic control after elimination of the HOPE Program

SELF ASSESSMENT QUESTION: The elimination of an employer-sponsored copay reduction program did not statistically increase HbA1c values for beneficiaries whose diabetes was managed by a pharmacist. (True or False)

BACKGROUND: Rising medication costs are a barrier in patient adherence to medications necessary to manage chronic disease states. Diabetes management is one disease state that guideline directed therapy can introduce financial hardship. To assist patients' financial needs, Atrium Health Wake Forest Baptist created the “Healthy Outcomes Partnership for Employees” (HOPE) Program, an employee-sponsored health program. Patients enrolled in the program were able to be seen by pharmacists in the Pharmacy Care Clinic (PCC) at no cost. Additionally, a HOPE drug formulary was created which offered waived copays for select medications when filled at community pharmacies within the health system. In 2021, the HOPE Program was converted to the pharmacy benefits manager (PBM) formulary, and waived copays for diabetes medications were expanded to include all tier 1 and tier 2 medications. Anecdotally, medication cost for antidiabetic medications and supplies became less of a concern for patients during this time.

In 2023, the financial benefits of the medication formulary were changed to add a copay on antidiabetic medication and supplies. A fee was also applied to all PCC visits; therefore, there was now a cost for both diabetes visits as well as all diabetes medication copays. Financial consideration became an additional factor to patient adherence and overall diabetes management. This study's purpose is to determine the impact on beneficiary glycemic control after elimination of the HOPE Program.

METHODOLOGY: Single site pre/post study comparing hemoglobin A1c (HbA1c) levels in 2022 to 2023. Participants include patients 18 years and older with a Type 2 Diabetes Mellitus diagnosis, enrolled in the employee health plan, who had documented visits with the PCC during the evaluation period, and reported HbA1c levels in 2022 and 2023. Exclusions include those not using a community pharmacy within the institution, pregnant patients, and those with a diagnosis of Type 1 Diabetes Mellitus. The primary endpoint is the mean change in HbA1c after the elimination of the HOPE program. Secondary endpoints include change in average monthly copay over a six-month period for antidiabetic medications and supplies, BMI changes, and antidiabetic medication changes. The exploratory endpoint consist of the average diabetes-related medical claim copay in 2022 and 2023. Data collection includes patient demographics, documented cardiovascular and renal complications, prescription and medical copays, labs associated with our primary and secondary endpoints. Statistical analysis will include paired t-test and descriptive statistics.

RESULTS: One-hundred and four beneficiaries were included in the primary analysis. The study population's baseline characteristics include a median age of 61, 49% male, and 79% having no documented diagnosis of chronic kidney disease (CKD) or a documented cardiovascular event. For the primary outcome, the mean change in HbA1c is -0.12 (pre 7.2 vs post 7.1; 95% CI [-0.363 to 0.122], p=0.358). The change in prescription copay for antidiabetic medication and supplies is $27.24/month (pre $2.32/month vs post $29.70/month; 95% CI [124.55 to 202.39], p<0.001). Of the 18 first line medication discontinuations, 7 were due to cost (3 SGLT2 inhibitors and 4 GLP-1 agonists).

CONCLUSIONS: The elimination of the copay reduction program did not lead to an increase in HbA1c. Elimination of the copay reduction program likely did not impact first line antidiabetic medication adherence for beneficiaries followed by a pharmacist.

12:00pm – 12:15pm

Off-Label Use of Dalbavancin and Oritavancin in a Rural Health System

Athena J

Presenters: Lyndsey Hagood

TITLE: Off-Label Use of Dalbavancin and Oritavancin in a Rural Health System

AUTHORS: Kendra Lyndsey Hagood, Daniel Rose

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Dalbavancin and oritavancin are long-acting lipoglycopeptides with activity against most gram-positive organisms, including methicillin-resistant Staphylococcus aureus. They are currently only FDA-approved for acute bacterial skin and skin structure infections (ABSSSI). Due to their extended half-life, there is increased interest in off-label use for deep-seated infections. The aim of this study is to assess the clinical and economic utility of long-acting lipoglycopeptides in patients who typically require prolonged antibiotic courses and who are not ideal candidates for traditional outpatient parenteral therapy. Enrolled patients were required to have a clinical diagnosis or suspicion of infection with gram-positive bacteria. Our primary outcome is clinical failure at sixty days. Our secondary outcome is mortality within ninety days and length of hospital stay.

METHODOLOGY: This is a retrospective, observational study of adults who received dalbavancin or oritavancin within the Ballad Health system between November 1st, 2022 through November 1st, 2023. Patients will be identified for screening via a report from the electronic health record.

RESULTS: TBD

CONCLUSIONS: TBD

12:00pm – 12:15pm ' **Impact of Diversity, Equity, Inclusion, and Belonging Strategies in a Pharmacy Residency Program** Athena I

Presenters: Marion Javellana

TITLE: Impact of Diversity, Equity, Inclusion, and Belonging Strategies in a Pharmacy Residency Program

AUTHORS: Marion Javellana; Kayla Lawlor; Sara Gattis; Anthony Scott

OBJECTIVE: To determine the impact of the DEIB strategies on the overall diversity of PGY1 residents

SELF ASSESSMENT QUESTION: What was the impact of DEIB strategies on the diversity outcomes of PGY1 residents and applicants?

BACKGROUND: One of the greatest challenges faced by our society today is combatting racial and ethnic disparities, particularly in the United States' healthcare system. The existing underrepresentation of racial and ethnic minority groups in the pharmacy industry poses a unique opportunity for an assessment of current recruitment strategies in pharmacists' training and education to determine if a sustainable infrastructure is in place to continually support diversity, equity, inclusion, and belonging (DEIB). The purpose of this study is to determine the impact of the DEIB- focused strategies implemented within Emory University Hospital's (EUH) residency recruitment process on the overall diversity seen amongst all residency applicants, those invited to interview, and those who ultimately matched with the program.

METHODOLOGY: In this single center, retrospective study, demographic data of all candidates who applied to EUH's post-graduate year 1 (PGY1) pharmacy residency program before and after the implementation of these strategies were assessed. The primary outcome compared the composite diversity of the matched residency class for the intervention group (2022-2023 and 2023-2024) versus the comparator control group (2020-2021 and 2021-2022). Secondary outcomes included composite diversity of the interviewed applicants and the entire applicant pool over the past four years (2020-2024). In addition, current EUH preceptors and PGY-1 residents who matched with EUH during the study timeframe were asked to complete a 20-item DEIB-focused questionnaire aimed at gaining insight on their experiences during the recruitment process.

RESULTS: 648 participants were included in the study, with 235 applicants in the intervention group and 285 in the control group. Composite diversity scores of matched residents in the intervention versus the control group were 29 vs. 30 (p value = 0.8525). When comparing the composite diversity scores of all four residency classes, there were no statistically significant differences (p value = 0.6881). Composite diversity scores of the interviewed applicants in the intervention versus the control group were 152 vs. 141 (p value = 0.3177). Composite diversity scores for all applicant pools also lack statistically significant difference between the intervention vs. the control groups (371 vs. 475 respectively, p value = 0.2461). Response rates to the surveys were higher among residents compared to preceptors, 75% vs. 43% respectively. Overall, survey responses indicate positive responses from both residents and preceptors alike. Most of the residents' responses to the questions pertaining to their experience in the recruitment process as it relates to DEIB, were overwhelmingly positive. Although majority of the preceptors did indicate a positive experience during the recruitment process with their responses, the percentages of positive responses were lower compared to the residents' responses, as there were more preceptors who responded with strongly disagree or disagree in several items within the questionnaires.

CONCLUSIONS: Results of this study show no differences among composite diversity scores among residents who matched at EUH, interviewed candidates, and all applicants before and after the DEIB strategies were implemented. This study provided valuable insight on residents' and preceptors' perspectives on the implementation of the DEIB-focused strategies, with results of the questionnaire showing a positive experience for most EUH residents and preceptors. While the study did not find significant differences in diversity scores between the intervention and control groups, the identified areas for improvement in DEIB strategies highlight the need for ongoing assessment and of best practices. Continued efforts to enhance awareness and understanding

of DEIB strategies among preceptors, coupled with a focus on specific areas identified for improvement, could contribute to a more inclusive and equitable pharmacy residency recruitment process at EUH.

12:00pm – 12:15pm M **Evaluating the Impact of Adding Group Education to an Established Employer-Based Weight Loss Service** Athena G

Presenters: Samuel Dowdle

TITLE: Evaluating the impact of adding group education to an established employer-based weight loss service

AUTHORS: Samuel Dowdle, Courtney E. Gamston,Camille Quiles-Abernathy, Kimberly Braxton-Lloyd

OBJECTIVE:

SELF ASSESSMENT QUESTION: True or False: Addition of group classes to an already established weight loss service has resulted in a statistically significant weight reduction over the first 8 sessions.

BACKGROUND: Healthy Habits is a weight loss service offered by a self-insured employer in Alabama. Through this service, individuals are educated on lifestyle management through one-on-one visits with a pharmacist. Over sixty percent of the service's 52 participants have lost weight with approximately 25% losing at least 5% of baseline body weight. Over 40% of participants experienced clinically meaningful improvements in blood pressure. Average participation is 10 individual visits and the service's retention rate is 52.7%. The purpose of this study is to assess how adding group classes to this established weight loss service will impact weight loss and service retention.

METHODOLOGY: In this quality improvement project, patients were recruited to join group education sessions in addition to the program's monthly one-on-one sessions. Participants were given the option to complete both one-on-one and group sessions or group sessions alone. The CDC's PreventT2 curriculum, modified for a weight loss application, was utilized for the group sessions. The curriculum spans twelve months with sixteen sessions being presented in the first six months and six sessions in the last six months and focuses on lifestyle changes including dietary modification, incorporation of moderate physical activity, and enhancing self-efficacy. The sessions were presented by a pharmacist and lasted approximately 45 minutes. At each group session, participants were weighed and reported their physical activity. Vital signs, weight, physical activity level, and eating habits were assessed at each individual appointment. The primary outcome was percentage body weight change from baseline. Secondary outcomes include attendance and program retention, change from baseline in the number of minutes of physical activity and blood pressure and percentage of patients meeting physical activity and weight loss recommendations. Correlation analyses were used to examine the relationships between variables.

RESULTS: TBD

CONCLUSIONS: TBD

12:00pm – 12:15pm C **Assessment of a Pharmacy-Led Intervention for Guideline-Directed Medical Therapy for Inpatient Care** Parthenon 2

Presenters: Asher Melton

TITLE: Assessing Pharmacy Initiation and Advancement of Heart Failure Guideline-Directed Medical Therapy for Inpatient Care

AUTHORS: Asher Melton; Kristin Liveris; Rachel Kile

OBJECTIVE: To discuss the implementation of a pharmacist-led intervention for inpatient optimization of guideline-directed medical therapy (GDMT) for patients who have heart failure with reduced ejection fraction (HFrEF) and to evaluate its feasibility, acceptability, and preliminary efficacy in a real-world clinical context.

BACKGROUND: Heart failure (HF) remains the primary cause of hospitalizations and readmissions, particularly among patients with a reduced left ventricular ejection fraction (LVEF $\leq$ 40%). GDMT is recognized as the gold standard for managing these patients, providing measurable reductions in exacerbations and improved outcomes. Although the 2022 guidelines from the American College of Cardiology, American Heart Association, and Heart Failure Society of America offer clear recommendations for which medications to initiate, there's still a significant gap in the sequence of starting therapy and the optimal titration rate. A study by Upton et al., which implemented a pharmacist-integrated care model in a Heart Failure Bridge Clinic (HFBC), found a statistically significant reduction in 30-day and 90-day readmissions, emergency department visits, and mortality rates. However, ongoing research indicates that GDMT is often underused and poorly dosed, in part due to difficulties in identifying patients who are not receiving optimal dosages and core therapies. At CHI Memorial Hospital, there is currently no standardized approach for identifying HFrEF patients, hindering the timely initiation and optimization of GDMT during inpatient care. This study aims to bridge this gap by leveraging the expertise of pharmacists to ensure personalized and timely GDMT adjustments, thus improving patient care and outcomes.

METHODOLOGY: This is a single-center, IRB approved, retrospective chart review study including patients at least 18 years of age or older with HFrEF and present with a HF exacerbation. The study aims to address and optimize GDMT with a focus on personalized and timely pharmaceutical interventions. These interventions included but were not limited to the addition or discontinuation of GDMT, dose adjustments to achieve target doses, discontinuation of medications exacerbating HF, and ensuring affordability for select prescribed medications. The primary endpoints of the study were assessing the proportion of patients who had advancements in their GDMT during their inpatient care, as well as 30 day readmission rates. Secondary endpoints included hospital length of stay, number of patients who had harmful medications discontinued, and doses titrated towards goal. Subsequent endpoints included patients who presented on quadruple therapy on admission and those who were discharged on quadruple therapy. The study also wanted to assess patients who were given a GDMT medication prescription at discharge and those who refilled their prescription at 30 days. A subanalysis was performed for the number of patients who met inclusion criteria, however were not able to be advanced on GDMT due to their clinical status.

RESULTS: A total of 864 patients were screened, with 58 included in the pre-intervention group and 26 in the post-intervention group. The primary reason for exclusion was not meeting the ejection fraction criteria. Baseline characteristics, such as age, sex, race, diabetes mellitus, and chronic kidney disease, were comparable between the two cohorts. The percentage of patients who advanced on GDMT was 72.4% in the pre-intervention group and 57.7% in the post-intervention group (p = 0.2118). The 30-day readmission rates for heart failure

exacerbations were 13.8% for the pre-intervention group and 3.8% for the post-intervention group (p = 0.2626). No statistically significant differences were observed in hospital length of stay, discontinuation of harmful medications, or dose increases. Further analysis indicated no significant variations in the proportion of patients on quadruple therapy at admission or discharge, and among those who received a prescription for GDMT and refilled it within 30 days. In a subanalysis, 13.8% of patients in the pre-intervention group and 23.1% in the post-intervention group were considered unable to advance on GDMT, but this difference wasn't substantial enough to impact the study's outcome. Notably, pharmacists intervened in the care of 7 patients (26.9%), accounting for about half of all GDMT optimizations during the study duration.

CONCLUSIONS: This study highlights that while pharmacist-led interventions can positively impact the optimization of GDMT for patients with HFrEF, the results underscored several challenges. The findings indicated that pharmacists could play a significant role in optimizing patient care by facilitating personalized adjustments to GDMT regimens, thus contributing to improved patient outcomes. However, certain limitations were noted during the study. The primary limitation was the relatively small sample size, which could affect the generalizability of the results. Additionally, the pharmacist-led intervention was one of many responsibilities for the pharmacists, leading to variability in timeliness for patient workup. The lack of a standardized procedure for identifying and initiating GDMT during inpatient stays further complicated the process. Moving forward, future studies could focus on addressing these limitations by increasing the sample size and developing a clear, standardized approach for pharmacist-led GDMT optimization. Additionally, exploring more robust intra-professional collaboration and pharmacist training in GDMT could contribute to more consistent and effective interventions. Establishing clear protocols for initiating and titrating GDMT could also help optimize the inpatient care process, ultimately leading to better outcomes for HFrEF patients.

12:00pm – 12:15pm R **Assessment of Midodrine Initiation and Vasopressor Liberation in Patients with Septic Shock** Olympia 2

Presenters: Joel Kennedy

TITLE: Assessment of Midodrine Initiation and Vasopressor Liberation in Patients with Septic Shock

AUTHORS: Joel Kennedy, Sarah Blackwell, Alyssa Osmonson, Jessica Starr

OBJECTIVE: Determine if enteral midodrine assists in weaning intravenous (IV) vasopressors in patients with septic shock.

SELF ASSESSMENT QUESTION: Does initiation of midodrine help facilitate the discontinuation of IV vasopressors in septic shock patients?

BACKGROUND: There is conflicting evidence on whether midodrine aids in early discontinuation of intravenous (IV) vasopressors. In many scenarios, IV vasopressors are the main barrier for intensive care unit (ICU) discharge as they cannot be administered on general medical floors. Although midodrine is indicated for some patients and is generally well tolerated, adverse effects such as bradyarrhythmia and supine hypertension can be severe. Many hospitalized patients are discharged from the ICU on midodrine, which may potentiate unnecessary prescribing of antihypertensives to counteract its effects. Utilization of midodrine for the purpose of weaning vasopressors continues to occur, despite the conflicting data. The goal of this study is to assess usage, efficacy, and safety of using oral midodrine to wean IV vasopressors in critically ill patients with septic shock.

METHODOLOGY: This is a single center, retrospective chart review in critically ill patients with septic shock requiring IV vasopressors for hemodynamic stability (HDS) between September 1, 2021 and August 31, 2023. Included patients are ≥18 years old in an ICU with septic shock, require IV vasopressors for HDS, and demonstrate clinical stability (defined as stable or decreased dose of IV vasopressor(s) for at least 4 hours). Patients are excluded if taking midodrine or fludrocortisone at baseline, taking midodrine for dialysis -related hypotension, or receiving IV vasopressors for hypovolemic or cardiogenic shock. Additional exclusion criteria include pregnancy, incarceration, or contraindications to midodrine. Outcomes are compared across two groups: patients on IV vasopressors alone and patients on IV vasopressors with concurrent midodrine. The primary endpoint is the duration of IV vasopressor use from time of clinical stability until IV vasopressor-free (defined as the time vasopressor therapy is stopped and then remains off for ≥24 hours). Secondary outcomes include ICU length of stay (LOS), hospital LOS, ICU mortality, hospital mortality, ICU readmission within the same hospital visit, and safety including bradycardia, hypertension, and documented ischemia. Statistical tests include student's t-test or Wilcoxon rank sum for continuous data and chi square for nominal data. Alpha is set at 0.05.

RESULTS: For the primary outcome of the mean time from stability to IV vasopressor discontinuation, the midodrine group had a significantly longer time to discontinuation compared to the IV vasopressor-only group, 3.5 days versus 1.8 days (p=0.000007). Secondary analysis revealed a significant increase in both ICU and hospital LOS in the midodrine group compared to the IV vasopressor-only group. ICU length of stay was 15 days versus 10 days (p=0.006), and hospital LOS was 17.5 days versus 13 days for the midodrine and IV vasopressor-only groups, respectively (p=0.02). For subgroup analysis, in the 22 patients where midodrine was initiated in 24 hours or less, there was a median of 2 days to IV vasopressor discontinuation. In the 16 patients started greater than 24 hours up to 48 hours, the median time to IV vasopressor discontinuation was 2.1 days, followed by 5.5 days in the 30 patients initiated after 48 hours.

CONCLUSIONS: In conclusion, the study findings indicate that the midodrine group exhibited a longer time to vasopressor discontinuation. Notably, subgroup analysis did not reveal a difference when midodrine was initiated sooner. These outcomes could be attributed to midodrine being used as salvage therapy rather than for IV vasopressor weaning in stable patients.

12:00pm – 12:15pm R **Improving Insulin Transition Strategies from Intensive Care Infusions to Subcutaneous Dosing** Olympia 1

Presenters: Christine Hudson

TITLE: Improving Insulin Transition Strategies from Intensive Care Infusions to Subcutaneous Dosing

AUTHORS: Christine Hudson, Kathleen Jerguson, Rebecka Hazelwood

OBJECTIVE: Recommend a dosing strategy to transition a critical care patient from continuous insulin infusion to subcutaneou insulin.

SELF ASSESSMENT QUESTION: Consider a patient who has been stabilized on an insulin infusion and is ready to transition to subcutaneous insulin. Based on the results of this study, which TDD dosing strategy would be effective?

BACKGROUND: In critically ill patients, continuous insulin infusions (CII) are an optimal approach for achieving glycemic control (glucose 140-180 mg/dL) per the American Diabetes Association (ADA). CII allows for consistent insulin administration, enhances clinical stability, and facilitates ultimate transition to subcutaneous insulin (SQI) by determining insulin total daily dose (TDD) requirements. A retrospective medication use evaluation (MUE) was conducted reviewing the insulin transition doses for critically ill patients ≥ 18 years of age at Wellstar Kennestone Hospital (WKH) between June 1, 2021, through May 31, 2022, for a 48-hour period. Following the project's completion, a performance improvement project related to TDD calculations was recommended to help determine the SQI transition dose. WKH critical care units use a proprietary computer program to adjust insulin infusions. This program was updated to calculate an estimated TDD of SQI once patient's clinical condition improved. Results from the new TDD process could be compared to the previous MUE data to evaluate glycemic control with the new TDD process.

METHODOLOGY: The insulin infusion computer program was updated in October 2023. Nurses and providers were educated that the new TDD functionality dose could be utilized to determine a SQI regimen instead of previous manually calculating doses. A single-center, retrospective chart review was conducted between October 2023 and January 2024. Patient charts were excluded if they received insulin infusions for diabetic ketoacidosis (DKA), hyperosmolar hyperglycemic state (HHS), age less than 18 years old, pregnant, or expired prior to 48-hour transition period. TDD values were recorded by rounding pharmacists. The primary outcome was to evaluate glycemic control with the new TDD computer program. The secondary outcomes included the mean blood glucose levels on day one and two, units of insulin per kilogram of body weight, and rates of hypoglycemia and hyperglycemia. Descriptive statistics were employed, study groups were compared for baseline characteristics and study outcomes using means, medians with interquartile range (IQR), numbers, and percentages, respectively.

RESULTS: The original MUE analyzed data from 77 eligible patients. Among these patients, hyperglycemic events (BG >180 mg/dL) occurred in 72 individuals (93.5%) following transition, resulting in a 49.1% incidence of hyperglycemia at 48 hours. The average daily dose of insulin administered was 0.6 units/kg, comprising 35.8 units of insulin glargine and 24 units of insulin lispro. Notably, no direct correlation was established between TDD and glycemic control within this limited sample size. Hypoglycemia (BG <70 mg/dL) was observed 10 times (1.1%), affecting 7 patients (9.1%). Remarkably, two of the seven patients who experienced hypoglycemic events exhibited renal impairment. Due to delayed implementation of the new TDD computer program, only 14 patients were included in the post-intervention group. During the study period, 144 blood

glucose checks were collected. Baseline characteristics and confounding variables were similar between groups. Day 1 (0-24 hours): Of 70 blood glucose checks, 68.6% fell within target range 70-180 mg/dL, 31.4% were hyperglycemic (BG >180 mg/dL), and the mean BG level of 174.5 mg/dL. Day 2 (25-48 hours): Of 74 blood glucose checks, 62.2% were euglycemic, 36.5 % indicated hyperglycemia, and one hypoglycemic event occurred (1.4%), and the mean BG of 170.4 mg/dL. Total insulin prescribed was similar to the calculated TDD in 5 patients (35.7%). Comparing BG levels from Phase I and Phase II, Day 1: Phase I (198.1 mg/dL), Phase II (174.5 mg/dL), p-value=0.049. Day 2: Phase I (194.5 mg/dL), Phase II (170.4 mg/dL), p-value=0.120. Phase I and Phase II % TDD: the mean TDD of Phase I <50% and Phase II 64% with a p-value=0.01.

CONCLUSIONS: Observations indicate that utilizing 60% TDD of insulin may benefit hyperglycemia management. Further analysis is needed for conclusive insights from this subset.

12:00pm – 12:15pm R **Optimizing Pharmacist-Team Integration for ICU Patient Management (OPTIM)** Parthenon 1

Presenters: Jana Kelly

TITLE: OPTIMIZING PHARMACIST-TEAM INTEGRATION FOR ICU PATIENT MANAGEMENT (OPTIM)

AUTHORS: Andrea Sikora, Jana Kelly, Megan Lail, Angelica Marques

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: To evaluate the relationship between critical care pharmacist (CCP)-to-patient ratio and mortality, as well as other patient-centered outcomes. This is a collaborative sub-study at McLeod Regional Medical Center.

METHODOLOGY: This was a single-center, observational cohort study, in collaboration with a national multi-center study. There was a demographic survey phase, a prospective enrollment phase, and a retrospective data collection phase. The first phase consisted of a one-time demographic survey intended to gauge institutional characteristics. In the prospective enrollment phase, the CCP recorded their daily workload using the Pharmacist Workload Index (PWI), which included the total number of patients cared for and any pharmacy trainees on rotation during that time. Finally, the retrospective phase assessed patient demographics as well as the primary and secondary outcomes. Critically ill adult patients under the care of a CCP were included in this study if they were in the ICU for at least 24 hours with no restrictions to care during the first 24 hours. The primary objective of this study assessed the incidence of in-hospital patient mortality. Secondary outcomes evaluated the PWI in relation to hospital and ICU length of stay, duration of mechanical ventilation, need for new renal replacement therapy, and the medication regimen complexity score (MRC-ICU).

RESULTS: Of the two hundred and fifty patients screened, two hundred and thirty patients are included in the preliminary analysis. In-hospital mortality occurred in 8% of enrolled patients. The average MRC-ICU score for these patients resulted as 12.5. The average MRC-ICU score for all included patients resulted as 9.75. The average hospital and ICU stay length for all patients was 286 and 130 hours, respectively. There were 81 patients who required mechanical ventilation for an average of 110 hours. Of the 31 patients who received inpatient hemodialysis, 26% had not received chronic renal replacement therapy prior to admission.

CONCLUSIONS: Over one thousand patients are estimated to be included in the final analysis of this study. Preliminary data shows that the average MRC-ICU score for patients with in-hospital mortality was above average when compared to the overall population, suggesting greater medication regimen complexity, an increased risk of adverse events, and an increased need for pharmacist management. We anticipate the final results of this study will provide guidance in determining the optimal pharmacist-to-patient ratio to potentially improve patient outcomes.

12:00pm – 12:15pm F **Effect of Oral Antibiotic Bowel Preparation on Colorectal Surgical Site Infection Rates** Athena D

Presenters: Margaret Moore

TITLE: Effect of Oral Antibiotic Bowel Preparation on Colorectal Surgical Site Infection Rates

AUTHORS: Margaret Moore, Melissa Padgett, Caitlin Ellis, Raid Amin

OBJECTIVE: At the end of this presentation, the audience should be able to identify the appropriate timing of oral antibiotic bowel preparation (OABP) and determine if their use before colorectal surgery has an impact on the rate of surgical site infections (SSI).

SELF ASSESSMENT QUESTION: When should OABP be administered?

BACKGROUND: Patients who undergo colorectal surgery are at a 25% increased risk of developing a surgical site infection (SSI) compared to any other type of surgery. Of these SSIs, 55% are categorized as preventable. Oral antibiotic bowel preparation (OABP), consisting of neomycin plus metronidazole and/or erythromycin, is proven to reduce the rate of SSIs from colorectal surgery by up to 67%. At the time of this study, OABP utilization was provider-driven and there was no standardization on whether patients would receive it prior to colorectal surgery. The objective of this study was to assess the effectiveness of OABP utilization on colorectal SSI rates.

METHODOLOGY: This was a single-center, retrospective study conducted at a 515-bed academic hospital. Patients were identified by using the facility's colon bundle checklist and National Healthcare Safety Network data. All patients who underwent colorectal surgery from January 2023 to October 2023 were included except those who were pregnant or underwent emergent surgery. Patients were stratified into one of two cohorts: those who received OABP and those who did not receive OABP. The primary outcome was incidence of colorectal SSI. Secondary outcomes included concomitant use of mechanical bowel prep, mortality, length of hospital stay and incidence of Clostridioides difficile infections (CDI).

RESULTS: In total, 154 patients were included in the study, with 92 in the no OABP group and 62 in the OABP group. The use of OABP resulted in a statistically significant decrease in the rate of colorectal SSI (no OABP = 6.5% vs OABP = 0%, p=0.0425). More patients were found to have received concomitant mechanical bowel prep in the cohort that received OABP (85%) versus no OABP (65%), p=0.0053; additionally, those without OABP had a longer length of stay (8.9 days vs 5.4 days, p = 0.0008). No differences were seen in the secondary outcomes of mortality or CDI.

CONCLUSIONS: The use of OABP before colorectal surgery significantly decreased the rate of SSIs, as well as total length of hospital stay. This study also demonstrates that the addition of OABP before surgery does not increase the risk of developing CDI. Based on the results of this study, the use of OABP could be considered as an addition to standard treatment in order to reduce colorectal SSIs as well as hospital length of stay. Larger studies are warranted to explore the financial implications of utilizing OABP.

12:00pm – 12:15pm F **IV to PO Antibiotic Conversions in Osteomyelitis or Gram-Negative Bloodstream Infections** Athena C

Presenters: Evan Lawson

TITLE: IV to PO Antibiotic Conversions in Osteomyelitis or Gram-Negative Bloodstream Infections

AUTHORS: Evan Lawson, Stephen Eure, Doug Carroll

OBJECTIVE: Discuss the extent of intravenous to oral antibiotic conversions in patients with eligible osteomyelitis or gram-negative bloodstream infections.

SELF ASSESSMENT QUESTION: Which of the following would be an ideal highly bioavailable oral antibiotic option for a patient with uncomplicated gram-negative bloodstream infection? a. cefdinir b. levofloxacin c. cefpodoxime d. doxycycline

BACKGROUND: Patients with osteomyelitis or gram-negative bloodstream infections (BSIs) have historically been treated with extended durations of intravenous (IV) antibiotics. However, this practice has not been supported by clinical trials with high quality evidence. Use of IV-only antibiotic treatments has been shown to increase adverse effects, hospital length of stay, and costs to patients and health systems as well as decrease comfortability for patients. Additionally, there has recently been increasing evidence from literature showing the efficacy and safety of IV to PO conversions in patients with a variety of infectious diseases, including osteomyelitis and BSIs. The purpose of this project was to evaluate the current practice of IV to PO conversion for these patients at DCH Health System, and to identify areas for improvement.

METHODOLOGY: All patients at DCH Regional and Northport Medical Centers from June 2022 to July 2023 who were treated for osteomyelitis or gram-negative BSIs were identified via electronic reports. Patients with osteomyelitis were identified via ICD-10 codes as well as diagnosis of osteomyelitis listed within the electronic medical record (EMR). Patients with gram-negative BSIs were identified via positive blood culture results on the EMR. Retrospective chart reviews were completed on these patients to screen for eligibility. Eligible participants were those ≥19 who were diagnosed with osteomyelitis or gram-negative bloodstream infections with 1 or more signs or symptoms of infection. Patients had to have experienced clinical improvement within 72 hours of appropriate IV antibiotic initiation, tolerated oral medications, and have undergone adequate source control if possible. Data points collected on eligible patients included demographics, extent of IV to PO conversions, durations of IV and oral antibiotic treatments, length of stay, and percentage of highly bioavailable oral antibiotic use.

RESULTS: 219 patients with positive blood cultures with gram-negative bacteria identified and 59 patients met inclusion criteria. 173 patients with ICD-10 code or problem listing of ostemylitis were identified and 45 patients met inclusion criteria. Primary outcome of IV to oral antibiotic conversions in eligible patients occurred in 51 of 59 (86%) of patients with gram-negative BSI and 14 of 45 (31%) of patients with osteomyelitis. Both median antibiotic durations and length of stay were lower in both gram-negative BSI and osteomyelitis in patients that were converted to oral. 40 of 51 (78%) of patients with gram-negative BSI that were converted to oral received highly bioavailable antibiotics, whereas 14 of 14 (100%) of patients with osteomyelitis that were converted to oral received highly bioavailable agents.

CONCLUSIONS: A large percentage of patients treated for Gram-negative BSI at DCH Health System are converted to oral during their course. A small percentage of patients treated for osteomyelitis were converted to oral. Patients with uncomplicated Gram-negative BSI are commonly treated with unnecessarily long durations of antibiotics, regardless of treatment route. Durations of antibiotic therapy and length of stay were lower in patients converted to oral. Providers typically prescribe highly bioavailable oral antibiotics when converting, but there is room for improvement in those with Gram-negative BSI.

12:00pm – 12:15pm T **Safety and Efficacy of Rituximab in Autoimmune Conditions** Athena B

Presenters: Barry A. Brown Jr.

TITLE: Safety and Efficacy of Rituximab in Autoimmune Conditions

AUTHORS: Barry A. Brown Jr. and Sajia Kotwal

OBJECTIVE: Evaluate rituximab for the treatment of autoimmune conditions

SELF ASSESSMENT QUESTION: Among the autoimmune conditions studied, which group of patients had the highest overall response rate to rituximab therapy?

BACKGROUND: Rituximab is a chimeric monoclonal antibody which binds CD20 receptors on antigen presenting B lymphocytes, inducing cellular depletion through several mechanisms. It was first indicated for the treatment of Non-Hodgkin lymphoma but has since gained popularity for off-label use in autoimmune conditions such as antineutrophilic cytoplasmic antibody (ANCA) vasculitis, glomerulonephritis, lupus nephritis and thrombotic thrombocytopenia purpura (TTP). However, studies evaluating rituximab use for these indications are limited. In some community hospitals, rituximab is used inpatient for those with disease refractory to standard of care. The purpose of this retrospective analysis was to evaluate the safety and efficacy of rituximab for the refractory treatment of ANCA vasculitis, glomerulonephritis, lupus nephritis, and TTP.

METHODOLOGY: The study was a single center, retrospective chart review with data collected from January 2020 to September 2023. The trial included hospitalized patients ≥ 18 years old with a documented diagnosis of ANCA vasculitis, glomerulonephritis, lupus nephritis, or TTP and receipt of at least one dose of rituximab during admission. Patients were excluded if they had received rituximab as part of a chemotherapeutic regimen. The primary efficacy outcomes measured were proportion of patients having clinically meaningful response and proportion achieving clinical remission. Secondary efficacy outcomes were time to clinical response, length of hospital stay, and use of intravenous immunoglobulin or other immunosuppressive therapies. Safety outcomes assessed were frequency of adverse effects, infusion-related reactions, and incidence of infection within 90 days of treatment.

RESULTS: Among all patients, 56% experienced a clinical response and 25% achieved remission (n = 16). The highest rates of remission were observed in those with ANCA vasculitis (33%). The most common adjunctive immunosuppressive therapy used were corticosteroids with the average daily prednisone equivalent dose being 230 mg per day. Swelling/edema occurred in 31% and incidence of infection within the first 90 days was 13%. One patient experienced a severe infusion related reaction.

CONCLUSIONS: Rituximab may play a role in the refractory treatment of ANCA vasculitis, glomerulonephritis, lupus nephritis, and TTP when used with adjunctive immunosuppressives (i.e., steroids). It was relatively well tolerated though one patient experienced a severe infusion related reaction. Additional studies are needed to support these findings.

12:00pm – 12:15pm L **Impact of a Pharmacist-Led Post-Stroke Clinic** Athena A

Presenters: Emily Overly

TITLE: Impact of a Pharmacist-Led Post-Stroke Clinic

AUTHORS: Emily Overly, PharmD; Hanie Barakat, PharmD, BCPS; Alison Martin, PharmD, BCACP

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Stroke is the fifth most common cause of death and a leading cause of disability in the United States. Patients with a history of stroke and uncontrolled risk factors are at a high risk of having another atherosclerotic cardiovascular disease (ASCVD) event. Many patients are not able to follow up with their healthcare providers every week or month for medication adjustments to reach their health goals in a timely manner. Pharmacists are uniquely suited to fill this gap based on their expertise in medication management and utilization of a scope of practice to make the necessary medication adjustments for secondary stroke prevention.

METHODOLOGY: This was a quality assurance project to assess pharmacist interventions relating to a neurology service expansion. The primary objective of this project was to determine the pharmacist impact on stroke risk factor modification for patients referred to the stroke pharmacotherapy clinic. The secondary objective was to evaluate pharmacists' role in medication management for secondary stroke prevention, and describe pharmacist interventions in this new clinic. Patients were enrolled to the stroke pharmacotherapy clinic from neurology provider recommendation, the equality metric (eQm) dashboard, or through prior authorization drug requests (PADRs). Low density lipoprotein (LDL) and blood pressure before enrollment and before discharge were compared. Health factors were developed as part of a new note template and utilized to track pharmacist interventions.

RESULTS: TBD

CONCLUSIONS: TBD

12:00pm – 12:15pm E **High-dose, twice-daily caffeine for preventing bronchopulmonary dysplasia (BPD) in preterm neonates** Athena H

Presenters: Taja Scott, PharmD

TITLE: High-dose, twice-daily caffeine for preventing bronchopulmonary dysplasia (BPD) in preterm neonates

AUTHORS: Taja Scott, Eric Shaw, and Desirée Ferrel

OBJECTIVE: Identify therapeutic benefits associated with caffeine administration in the neonatal population.

SELF ASSESSMENT QUESTION: What therapeutic benefits did patients experience after caffeine administration in the study?

BACKGROUND: To compare the safety and efficacy of high-dose caffeine therapy, at 10 mg/kg and 12 mg/kg, each divided into two daily doses, with that of a standard daily maintenance dose of 8 mg/kg, in the prevention of BPD in premature infants.

METHODOLOGY: In this single-center, retrospective chart review, preterm infants born before 29 weeks gestational age (GA) were administered caffeine at doses ranging from 8 mg/kg/day to 12 mg/kg/day. Neonates were excluded if they were transferred or discharged from Memorial Health University Medical Center before a BPD diagnosis or if they expired before reaching 36 weeks postmenstrual age (PMA). Data from February 01, 2020, to September 28, 2023, were analyzed by comparing patients receiving a daily maintenance dose of 8 mg/kg with those given 10 mg/kg and 12 mg/kg, each divided into two daily doses. The primary objective was to assess the incidence of BPD at 36 weeks PMA. Secondary outcomes included the duration of ventilatory support, occurrences of tachycardia (defined as a heart rate exceeding 180 beats per minute [bpm]) leading to a reduction in caffeine dose, instances of apnea necessitating an increase in caffeine dosage, and mortality following a diagnosis of BPD during inpatient care in the neonatal intensive care unit (NICU).

RESULTS: In this study, 100 patients were selected from a review of 154 patient charts, with 50 in the 8 mg/kg/day group, 25 in the 10 mg/kg/day group, and another 25 in the 12 mg/kg/day group. Baseline characteristics were similar across groups. The primary analysis compared infants who received 10 mg/kg and 12 mg/kg of caffeine, administered in two daily doses, to those treated with one daily dose of 8 mg/kg. The primary outcome, diagnosis of BPD at 36 weeks PMA, occurred in 41 (82%) patients treated with one daily dose and 36 (72%) patients with two daily doses (OR, 0.564 [95% CI, 0.218% to 1.459], P equal to 0.235). Secondary outcomes included duration of ventilatory support (104 plus or minus 47 days vs. 108 plus or minus 48 days; P equal to 0.673), instances of tachycardia resulting in caffeine dose reduction (0% vs. 2%; OR, 1.02 [95% CI, 0.981% to 1.062 %], P equal to 0.999), and occurrences of apnea necessitating a caffeine dose increase (38% vs. 2%; OR, 0.033 [95% CI, 0.004% to 0.261%], P less than 0.001). Mortality subsequent to BPD diagnosis was 8% in the single daily dose group and 2% in the two daily doses group (OR, 0.235 [95% CI, 0.025% to 2.178%], P equal to 0.362). A secondary analysis reaffirmed these findings.

CONCLUSIONS: While the study proposes a potential correlation between high-dose, twice-daily caffeine and a decrease in apneic episodes, the absence of a significant impact on BPD diagnosis underscores the necessity for additional research to comprehensively grasp caffeine's role in preventing this condition and refine recommendations for its use in the care of preterm neonates.

12:20pm – 12:35pm ' **Implementation of a Pharmacy-Led Authorization Process at an Academic Medical Center** Athena I

Presenters: Gabrielle Bachner

TITLE: Implementation of a Pharmacy-Led Authorization Process at an Academic Medical Center

AUTHORS: Gabrielle Bachner, Meredith Lopez, Carolyn Braithwaite-Jordan, Regina Edmonds

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Medication authorization is a process that requires many steps to be followed to ensure claims are approved and there is reimbursement for the institution. At our institution, we currently have two separate pathways of medication authorization. There is both a patient access services led process, and a pharmacy-led authorization process. The steps of both processes differ significantly and there is a difference in employee responsibilities in each process. Furthermore, the pharmacy-led process is completed by pharmacy technicians who must be licensed with the state and may have further education and experience in pharmacy or other healthcare fields. The patient access services led process was previously in place at our oncology outpatient infusion center, while our pharmacy-led process has been in place at two of our non-oncology-based infusion clinics. Currently, we are transitioning to our pharmacy-led process at the oncology infusion centers.

The pharmacy team collects data points, such as total dates of service, total number of denials, and fatal denial rate, for our pharmacy-led authorization process. These same data points are not collected for the patient access services led process. However, there is information that majority of the avoidable denials that occur in the patient access services led process are front end denials, meaning it was authorization or eligibility related.

METHODOLOGY: Some previous studies have been done that looked at a standardized process for authorizations. In these studies, there was no established process in place, and then pharmacy established a process. In all of these studies, it was shown that with a pharmacy-led process, there was an improvement in write-offs, approvals and additional revenue. Our current project differs from these studies since there is an established process that is not pharmacy-led at our institution, but we will be converting to the pharmacy led process. This project will consist of comparing the patient access services process to the pharmacy-led process, through various data points as well as a satisfaction survey distributed to both clinics. The overall goal of this project is to establish a detailed procedure detailing the implementation of a pharmacy-led authorization process across the current health-system.

RESULTS: While this implementation process is still ongoing, we have collected satisfaction survey responses from both clinics. There were four responses to the survey distributed at the oncology-based infusion clinics and there were fifteen responses to the survey distributed at the non-oncology-based infusion clinics. At the oncology-based infusion clinics, all respondents were dissatisfied or neutral with the current medication authorization process in place (patient access services led). For the non-oncology-based infusion clinics, 93% of respondents were satisfied with the current medication authorization process in place (pharmacy-led).

CONCLUSIONS: TBD

12:20pm – 12:35pm C **Continuous Infusion versus Intermittent Furosemide Post-Cardiothoracic Surgery in Neonates** Parthenon 2

Presenters: Marwah Alzer

TITLE: Continuous Infusion versus Intermittent Furosemide Post-Cardiothoracic Surgery in Neonates

AUTHORS: Marwah Alzer, Josh Branstetter, Hania Zaki

OBJECTIVE: To compare the efficacy of continuous and intermittent loop diuretics in neonatal patients after cardiothoracic surgery by examining urine output

BACKGROUND: Fluid overload is estimated to occur in about 40% of pediatric patients after cardiothoracic surgery and contributes to increased morbidity and mortality and is associated with increased morbidity and mortality. Both continuous and intermittent administration of diuretics have been used in the treatment of fluid overload; however, they, have not been extensively studied in the neonatal population. The aim of this retrospective cohort study is to compare the efficacy of continuous versus intermittent furosemide in post-operative neonates with congenital heart disease.

METHODOLOGY: This is a retrospective cohort study of patients less than 30 days of age with congenital heart disease admitted to the cardiac intensive care unit from October 1, 2020 to October 1, 2023 who received either continuous or intermittent furosemide post-operatively. Patients were excluded if peritoneal dialysis catheter was place in the operating room, had anatomic or genetic kidney disease, placed on continuous renal replacement therapy or extracorporeal membrane oxygenation 72 hours post operatively, returned to the operating room within 72 hours of initial cardiac surgery, or received a loop diuretic other than furosemide. Efficacy was evaluated as the primary endpoint based on urine output response on post-operative days 1 through 3. Additional efficacy outcomes were duration of mechanical ventilation, cardiac intensive care unit length of stay and furosemide dosing requirements. Safety was evaluated primarily based on the change in serum creatinine. Blood urea nitrogen and serum creatinine were recorded on the day of surgery as well as post-operative days 1 through 3.

RESULTS: 130 patient chart were evaluated with 55 meeting inclusion criteria. Urine output was similar amongst the study period between continuous furosemide and intermittent furosemide respectively [5.3 mL/kg/shift (IQR 4.95-5.85; p-value 0.754) vs 5.36 mL/kg/shift (IQR 4.46-5.94; p-value 0.754)]. The patients in the continuous furosemide group received more furosemide during the study period compared to the intermittent group [4.5 mg/kg/day (SD 1.7) vs 1.9 mg/kg/day (SD 1.6); p=0.001]. Patients in the continuous intravenous group had a longer mechanical ventilation time of [14.4 hours (IQR 13.6-15.4; p-value 0.028) vs 12.2 hours (IQR 11-14.5); p-value 0.028] and a longer median length of stay [33 days (IQR 21-49) vs 8 days (IQR 5-14); p-value <0.001] compared to the intermittent group. Neither group had an increase in serum creatinine from baseline during POD 1-3.

CONCLUSION: Both continuous intravenous infusion and intermittent furosemide were safe and efficacious in producing a diuretic effect in post-operative neonates with congenital heart disease. Intermittent dosing was just as efficacious as continuous dosing producing adequate diuresis with lower dose requirements per day.

12:20pm – 12:35pm M **Pharmacist Impact on Pharmacotherapy Optimization and LDL-C Thresholds in Very High ASCVD Risk** Athena G

Presenters: Preston Mayo

TITLE: Pharmacist Impact on Pharmacotherapy Optimization and LDL-C Thresholds in Very High ASCVD Risk

AUTHORS: Preston Mayo, Kristen Pierce, Viral Patel, Jaden Johnson, Halle Tukes, Chelsea Keedy

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The 2022 American College of Cardiology Expert Consensus Pathway for the management of atherosclerotic cardiovascular disease (ASCVD) risk recommends an LDL-C threshold level of ≥55 mg/dL for pharmacotherapy initiation or intensification for individuals considered to be at a “very high” risk for an ASCVD event. Pharmacists are well positioned to help patients obtain appropriate pharmacotherapy and reach desired LDL-C goals. The primary objective of this study was to identify gaps in pharmacotherapy and achievement of desired LDL-C goals for patients at very high ASCVD risk within two primary care offices.

METHODOLOGY: This was a retrospective, observational study of established patients at two primary care offices within a community health-system from June 1, 2020 to June 1, 2023. A report was generated based on ICD-10 codes to identify those at very high risk for ASCVD. Data was collected via an electronic spreadsheet. Patients with pharmacist involvement in their lipid management were compared to patients that received usual care. The primary outcome was the percentage of participants with an LDL-C of ≥ 55 mg/dL to proactively identify patients not at the desired goal. Patients were included if they had two or more major ASCVD events or one major ASCVD event plus two or more high risk conditions. Pregnant individuals and patients with active cancer were excluded. Patient demographics including age, sex, body mass index, and race were collected. Pertinent past medical history was also collected including hypertension, diabetes mellitus, myocardial infarction, acute coronary syndrome, ischemic stroke, and transient ischemic attack. Additionally, the most recent lipid panel and hemoglobin A1c were collected. Charts were assessed for the initiation and intensification of statins, ezetimibe, evolocumab, alirocumab, inclisiran, and bempedoic acid. Barriers to therapy were recorded if applicable. Descriptive statistics were utilized. Chi-square tests were utilized for percentage based and nominal outcome measures.

RESULTS: Four-hundred twenty-six participants were included in this study. Of the 426 participants included, twenty-eight (6.6%) were included in the pharmacist intervention group. Baseline characteristics between the two groups were similar. In the pharmacist intervention group, twenty-one (75%) had an LDL-C ≥ 55 mg/dL versus 336 participants (84.98%) in the usual care group (p=0.126). The average LDL-C was 87.57 mg/dL in the pharmacist intervention group versus 88.25 mg/dL in the usual care group. There was a statistically significant difference in the use of proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors between the two groups with medication initiation seen in 42.86% of participants in the pharmacist intervention group versus 2.76% of participants in the usual care group (p=0.00001).

CONCLUSIONS: Guideline updates for the management and risk reduction of ASCVD encourages the utilization of various non-statin therapies to achieve desired LDL-C goals. This retrospective, observational study suggests that pharmacist-driven interventions may lead to higher rates of LDL-C goal attainment while increasing access to appropriate pharmacotherapy. This study also identified a large number of very high risk patients who have not achieved desired LDL-C goals that may benefit from pharmacist-driven intervention in the future.

12:20pm – 12:35pm R **Alteplase vs Tenecteplase in Acute Ischemic Stroke at a Community Medical Center** Olympia 2

Presenters: Hannah Cozart

TITLE: Alteplase vs Tenecteplase in Acute Ischemic Stroke at a Community Medical Center

AUTHORS: Hannah K. Cozart, Rachel Rumbarger, Jon Oriet

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Eighty-seven percent of all strokes are ischemic, in which blood flow to the brain is blocked. Historically, Cone Health used alteplase when thrombolytic therapy was indicated. However, tenecteplase can be utilized off-label for thrombolytic therapy due to its ease of administration and longer half-life compared to alteplase. Recently, Cone Health switched to using tenecteplase for all strokes in which thrombolytic therapy was indicated. The purpose of this study is to identify if there is a difference in bleeding and time to administration with alteplase versus tenecteplase in acute ischemic stroke.

METHODOLOGY: This was a single center, IRB exempt, retrospective MUE performed from November 4th 2021 to September 21st, 2023. Adult patients with a diagnosis of acute ischemic stroke and received thrombolytic therapy at Moses Cone Hospital were included in the analysis. Patients were excluded if they received treatment in interventional radiology. Data collected included patient demographic information, door to needle times, and rate of hemorrhagic transformations. Patients were grouped based on the drug therapy they received. The primary efficacy outcome was difference in door to needle times and the co-primary safety outcome was difference in rates of symptomatic intracranial hemorrhage; defined as an increase in NIHSS greater than or equal to four within thirty-six hours of drug administration.

RESULTS: One-hundred and seventy-three patients were included in this medication use evaluation; eighty-two in the alteplase group and ninety-one in the tenecteplase group. The average age in the alteplase group was younger at 66.7 years compared to 71.5 years in the tenecteplase group. The alteplase group was 41.5% female; whereas the tenecteplase group was 57.1% female. In the alteplase group, patients self-identified as 57.3% White or Caucasian, 36.6% black or African American, 4.9% other or two or more races, and 1.2% Hispanic. In the tenecteplase group, patients self-identified as 67% White or Caucasian, 31.9% black or African American, 1.1% other or two or more races, and 0% Hispanic. The median door to needle time with alteplase was 33 minutes (IQR 22 – 53 minutes) whereas the median door to needle time with tenecteplase was 26 minutes (IQR 18 – 51 minutes). This difference yields a significant p-value of 0.034 using a Wilcox rank-sum test. Six patients in the alteplase group experienced a hemorrhagic transformation of their stroke compared to zero patients in the tenecteplase group. This difference yields a significant p-value of 0.01 using a Fisher’s exact test.

CONCLUSIONS: These findings are consistent with current literature, which have also found shorter door to needle times and lower rates of hemorrhagic transformation with tenecteplase. These findings support the continued use of tenecteplase over alteplase for acute ischemic stroke patients at this community medical center.

12:20pm – 12:35pm R **Timing of VTE Prophylaxis After Craniotomy or Craniectomy for Traumatic Brain Injury** Olympia 1

Presenters: Julia Goudeau

TITLE: Timing of VTE Prophylaxis After Craniotomy or Craniectomy for Traumatic Brain Injury

AUTHORS: Julia Goudeau, Ashley Hawthorne, ShaRhonda Watkins

OBJECTIVE: Describe how the timing of venous thromboembolism (VTE) chemoprophylaxis impacts patient outcomes post craniotomy and/or craniectomy secondary to traumatic brain injury.

SELF ASSESSMENT QUESTION: What percent of patients in this study received VTE chemoprophylaxis >72 hours post craniectomy and/or craniotomy secondary to TBI?

BACKGROUND:

Literature suggests critically ill trauma patients have approximately 60% risk of developing venous thromboembolism (VTE) after injury. Those requiring neurosurgical intervention following traumatic brain injury (TBI) represent one of the most challenging groups to manage for chemical VTE prophylaxis per the American College of Surgeons Trauma Quality Improvement Program (ACS TQIP) Best Practices in the Management of TBI. This arises from the heightened risk for the progression of intracranial bleeding and frequent exclusion from studies. Consequently, data regarding this cohort's optimal timing of initiating VTE chemoprophylaxis is minimal, and some results are inconsistent. This study evaluated VTE chemoprophylaxis timing and associated outcomes after craniotomy or craniectomy in patients with TBI admitted to a level 1 trauma center.

METHODOLOGY:

This single-center, retrospective medical record cohort study included patients admitted between January 1 and December 31, 2022. The primary outcome included intracranial complications, defined as worsening Glasgow-Coma Scale with expansion of or new hemorrhage on repeat imaging or need for angiography or re-operation, or a decrease in hemoglobin requiring transfusion, all within five days of initiating VTE chemoprophylaxis. Secondary endpoints include VTE events, defined as deep vein thrombosis or pulmonary embolism, all-cause mortality, and ICU and hospital lengths of stay (LOS). Patients > 15 years of age with an Abbreviated Injury Scale Head > 3, an Injury Severity Score > 9, requiring craniotomy or craniectomy resulting from recent trauma, with VTE chemoprophylaxis initiated post-intervention, were included. Patients on chronic anticoagulation or anti-platelet therapy prior to admission were excluded. Study cohorts (VTE chemoprophylaxis < 48 hours, 48-72 hours, and > 72 hours after intervention) were assessed for 30 days or until discharge. VTE chemoprophylaxis was defined as enoxaparin 30 mg subcutaneously (SQ) twice daily (BID) for Body Mass Index (BMI) < 30, enoxaparin 0.5mg/kg BID for BMI > 30, or heparin 5000 units three times daily (TID) if creatine clearance (CrCl) < 30. Statistical analysis was done using Fisher’s exact test for categorical data, Kruskal-Wallis for continuous data, and means with standard deviations for descriptive statistics.

RESULTS:

A total of 24 patients (< 48 hrs=1, 48-72 hrs =4, > 72 hrs= 19) were included. Fourteen patients received enoxaparin 30 mg SQ BID, four received Heparin 5000 units SQ TID, and six received enoxaparin 0.5 mg/kg SQ BID. The incidence of primary endpoint event of intracranial hemorrhage complication occurred in one patient in the < 48 hours group and none of the patients in the 48-72 hours and > 72 hours groups (1 [100%] vs. 0,0 p= 0.042). There was no incidence of VTE in any group. Death occurred in two patients in the > 72-hour group and zero patients in either of the other two groups (10.5% vs 0% p=0.75). The mean hospital LOS was 40.25 days with a mean rank of 9, 12, and 12.79 (p=0.861) in the <48-hours, 48-72 hours, and >72-hour groups, respectively. The mean LOS in the ICU was 15.71 days with a mean rank of 2.5, 11.75, and 13.18 (p=0.327) in the <48 hours, 48-72 hours, and >72 hours groups, respectively.

CONCLUSIONS:

Among TBI patients requiring craniotomy or craniectomy, initiation of VTE chemoprophylaxis > 48 hours post-intervention was associated with a low risk of intracranial hemorrhage complications without an increase in VTE.

12:20pm – 12:35pm F **Discharge Antibiotic Appropriateness in the Emergency Department** Athena C

Presenters: Kelly Bodine

TITLE: Discharge Antibiotic Appropriateness in the Emergency Department

AUTHORS: Kelly M Bodine, Joseph Corbino, Shreena Advani, John Patka, Sheetal Kandiah

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The antimicrobial stewardship team at Grady Health System (GHS) has developed institutional treatment guidance documents and antibiograms to assist in the appropriate diagnosis and treatment of common infectious conditions, including urinary tract infections (UTIs) and acute bacterial skin and skin structure infections (ABSSSIs). This study aims to assess the appropriateness of discharge antibiotic prescriptions from the emergency department (ED) for the treatment of UTI, including complicated/uncomplicated cystitis and uncomplicated pyelonephritis, and ABSSSI.

METHODOLOGY: This retrospective chart review queried outpatient UTI and ABSSSI antibiotic orders written by ED providers for patients ≥ 18 years old from November 2022 to March 2023. The primary outcome of antibiotic appropriateness is a composite of the adherence to institutional guideline specified antibiotic choice, dose, and duration. Secondary outcomes include repeat healthcare visit within 30 days, definitive culture data and actions taken, prescriptions picked-up at discharge, and reason for inappropriateness of antibiotic treatment.

RESULTS: One-hundred patients met inclusion criteria, 55 in the UTI group and 45 in the ABSSSI group. The primary outcome was met in 41.8% of patients in the UTI group and 20% of patients in the ABSSSI group. When assessing the components of the composite outcome, 65.5% of UTI patients and 64.4% of ABSSSI patients had appropriate antibiotic choice. In UTI patients, 72.7% had appropriate dose and frequency with ABSSSI patients being appropriate for 73.3%. The driving factor for inappropriate prescribing practices was duration, with 56.4% of UTI and 24.4% of ABSSSI patients receiving appropriate durations. While overall appropriateness was less than 50% for both groups, only 6 patients with UTI and 5 patients with ABSSSI had repeat healthcare visits within 30 days for the same concerns. Cultures were infrequently obtained in both groups and prescriptions were infrequently prescribed to GHS pharmacies.

CONCLUSIONS: Although guidance documents exist to aid providers in selection of antibiotic, dose, and duration of therapy for ABSSSI and UTI, this study found that providers are not utilizing these recommendations, especially in regards to selection of duration of therapy for both UTI and ABSSSI. The most common practice was prescribing of antibiotic durations that were longer than recommended. Provider education and optimization of clinical decision support tools should be considered to improve prescribing practices.

12:20pm – 12:35pm F **Effectiveness of Levofloxacin vs Meropenem in Directed Treatment of ESBL Urinary Tract Infections** Athena D

Presenters: Cherise Kamerman

TITLE: Effectiveness of Levofloxacin vs Meropenem in Directed Treatment of ESBL Urinary Tract Infections
AUTHORS: Cherise Kamerman, Audrey Johnson, Eric Shaw, Stephanie Lesslie
OBJECTIVE: Summarize current IDSA recommendations for ESBL urinary tract infections
SELF ASSESSMENT QUESTION: What does IDSA recommend for directed treatment of urinary tract infections?
BACKGROUND: Urinary tract infections caused by extended spectrum beta-lactamase (ESBL) producing Enterobacteriaceae have presented challenges to effective antimicrobial treatment. Patients with pyelonephritis and complicated UTI's often face treatment failures, undesired clinical outcomes and extended lengths of hospital stay due to resistant, ESBL organisms. Currently, IDSA recommends utilization of non-carbapenem agents such as fluoroquinolones empirically in non-critically ill patients. Additionally, when a carbapenem is used empirically, the recommendation is to deescalate to a non-carbapenem agent when cultures indicate sensitivity and patient is stable. Recently, the Clinical Laboratory Standards Institute (CLSI) updated breakpoints for Gram negative Enterobacteriaceae showing increased resistance to fluoroquinolones causing concerns for treatment failures. The purpose of this study is to investigate the effectiveness of levofloxacin vs. meropenem in the directed treatment of ESBL complicated urinary tract infections and pyelonephritis.

METHODOLOGY: This was a retrospective chart review. A record of patients with positive ESBL urine culture from 7/30/2018 to 9/28/2023 was obtained. Patient charts were reviewed by a single investigator. Included patients were ≥ 18 years of age with clinically significant ESBL urine culture who received antibiotics for a total duration of at least seven days and received directed antibiotics within 72 hours of empiric antibiotic initiation. Pregnant and incarcerated patients were excluded. Additionally, patients were excluded if they had a negative urinalysis, carbapenem resistant urine culture, or a polymicrobial urine culture with the exception of yeast. Patients with concomitant infections of another source were also excluded. Primary outcome was antibiotic treatment failure defined as 1. Noted clinician determination of treatment failure or 2. Change to a different antibiotic following patient clinical worsening or failure to improve, noting absence of fever resolution within 48 hours of antibiotic initiation or fever reoccurrence or 3. Identification of the same pathogen and phenotypic susceptibilities on repeat cultures during the original admission or upon readmission within 30 days of discharge with UTI symptoms. Additional endpoints were hospital length of stay and mortality.
RESULTS: The charts of 393 patients were reviewed. Of those, 34 patients met inclusion criteria. Twenty-six patients received meropenem and eight patients received levofloxacin as directed therapy. The most common reasons for exclusion were receiving other directed antibiotics, urine culture with less than 105 CFU, and polymicrobial urine cultures. Patients who received levofloxacin on average were younger and had lower incidence of diabetes and long-term steroid use. While both groups had similar history of recurrent UTI, the meropenem group had a greater percentage of patients with history of ESBL UTI. All urine cultures were sensitive to meropenem. One culture that was reported as sensitive to levofloxacin was not sensitive with the updated CLSI breakpoints. For the primary outcome, one patient (3.8%) of patients in the meropenem group and one patient (12.5%) of patients in the levofloxacin group met the criteria for antibiotic treatment failure, both being readmitted for UTI within 30 days. One patient in the meropenem group died while admitted. Average hospital length of stay was shorter in the levofloxacin group (6.3 days) compared to the meropenem group (11.4 days).
CONCLUSIONS: There was no statistically significant difference in antibiotic treatment failure between meropenem and levofloxacin as directed therapy for ESBL pyelonephritis and complicated urinary tract infections. In this sample, the changing of CLSI breakpoints does not appear to have had an effect on patient

outcomes as the one patient whose culture sensitivity would have differed with the updated breakpoints was treated with meropenem. Difference in hospital length of stay is due in part to the fact that more patients were able to discharge and finish the antibiotic course in the outpatient setting.

12:20pm – 12:35pm T **Early versus Late Initiation of Norepinephrine for Hepatorenal Syndrome** Athena B

Presenters: Amanda Brademeyer

TITLE: Early versus Late Initiation of Norepinephrine for Hepatorenal Syndrome

AUTHORS: Amanda Brademeyer, Josh Sellers, Lauren McCluggage

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Norepinephrine is a widely used vasopressor for the treatment of hepatorenal syndrome (HRS) given its accessibility in the United States. Although historically the use of norepinephrine (NE) has been restricted to intensive care units (ICUs), institutions such as Vanderbilt have protocolized the use norepinephrine on stepdown units for HRS, thus increasing access to this therapy. Delays in initiation of norepinephrine therapy are common outside of the ICU, and a lack of data exists regarding how the timing of pressor initiation effects patient outcomes in HRS. This retrospective, single-center analysis was conducted to assess the effect of early (within 72 hours from admission) versus late (greater than 72 hours from admission) initiation of norepinephrine in stepdown units for the treatment of HRS.

METHODOLOGY: Study participants were identified via an EPIC-generated usage report. Patients were eligible for inclusion if they were at least 18 years of age and initiated on non-titratable norepinephrine outside of the ICU for the treatment of HRS. Patients admitted directly to an ICU or that had norepinephrine therapy initiated in an ICU were excluded. The early-initiation cohort was comprised of patients that received norepinephrine within 72 hours of admission, while the late-initiation cohort included patients that had norepinephrine therapy initiated greater than 72 hours from admission. The primary endpoint was treatment response to norepinephrine, defined as a decrease in serum creatinine to less than 1.5 mg/dL or a reduction from the pre-treatment value by at least 50% without the use of renal replacement therapy. Select secondary outcomes included the duration of norepinephrine therapy, the maximum dose of norepinephrine required, the change in serum creatinine (SCr) from the start of treatment to completion, the change in MELD score from admission to discharge, inpatient mortality, hospital length of stay (LOS), the use of renal replacement therapy (RRT), and liver transplantation.

RESULTS: A total of 65 patients admitted from November 1, 2018, to September 1, 2023, were included in the final analysis. Of these, there were 31 patients in the early-initiation cohort, and 34 patients that met criteria for the late-initiation group. The baseline characteristics were generally balanced between groups, with a median age of 57 years and median SCr upon admission of 3.25 mg/dL. The median MELD score was greater in the early-initiation group compared to the late-initiation cohort at 34.1 vs. 29.8, respectively. Additionally, less patients in the early-initiation group received the recommended two consecutive days of albumin therapy prior to NE initiation (68% vs. 98%). There was no statistical difference between HRS resolution between groups, which occurred in 6 patients (19.4%) in the early-initiation group and 3 patients (8.8%) in the late-initiation group (OR 2.48; 95% CI: 0.563 to 10.924, P=0.29). There was also no significant difference between inpatient mortality, inpatient RRT, hospital LOS, or transplantation outcomes. The median duration of NE therapy was similar between groups (115 hours in the early-initiation group vs. 114 hours in the late-initiation group; P=0.679), but the maximum dose of norepinephrine during treatment was lower in the early-initiation group (median of 12 mcg/min vs. 15 mcg/min; P=0.026). The change in SCr over the course of NE treatment and MELD from admission to discharge did not differ significantly between groups.

CONCLUSIONS: Among patients treated outside of an ICU for hepatorenal syndrome, earlier initiation of norepinephrine did not significantly increase the rate of HRS reversal. Earlier NE initiation was associated with a lower maximum dose of norepinephrine during HRS treatment, but other secondary outcomes were not significantly affected.

12:20pm – 12:35pm E **Impact of a 48-Hour Antibiotic Stop Date for Rule-Out Sepsis in the Neonatal Population** Athena H

Presenters: Ifeoma Ugwuegbulam

TITLE: Impact of a 48-Hour Antibiotic Stop Date for Rule-Out Sepsis in the Neonatal Population

AUTHORS: Ifeoma Ugwuegbulam, Deidra Easley, Abby Murphy, Christy Post

OBJECTIVE: Evaluate the effectiveness of a 48-hour stop date on empiric NICU admission antibiotics.

SELF ASSESSMENT QUESTION: What is the mortality rate for preterm neonates with early-onset sepsis?

BACKGROUND: Sepsis is one of the major causes of morbidity and mortality in neonates, and the signs and symptoms of neonatal sepsis can be subtle and nonspecific. Therefore, antibiotics are commonly initiated upon admission to the neonatal intensive care unit (NICU) based on a patient's risk factors and clinical presentation. The purpose of this study was to examine if the implementation of a 48-hour automatic stop date on empiric admission antibiotics, specifically ampicillin and gentamicin, would decrease overall antibiotic use in neonates in the Baptist Health System without increasing adverse events.

METHODOLOGY: This is an institutional review committee approved, multi-center, retrospective chart review conducted at two Level III NICUs at Baptist Medical Center South and Baptist Medical Center East in Montgomery, Alabama. Patients admitted to the NICU and initiated on ampicillin and gentamicin therapy were identified with a random number generator selecting a total of 212 patients from September 2019 to September 2021 for review. Patients were included if they were term or preterm neonates admitted to the NICU with a length of stay (LOS) greater than 48 hours. Patients were excluded if they had a NICU LOS of less than 48 hours. The primary outcome was to evaluate the days of initial antibiotic therapy pre- and post-implementation. Secondary outcomes included LOS, antibiotic re-initiation within 10 days of discontinuation, positive culture identification, and all-cause mortality.

RESULTS: A total of 200 neonates were included on the report with 12 being excluded from the study. Baseline characteristics were consistent between both implementation groups with the average patient being male, weighing about 2.5 kg, and having a gestational age (GA) of 35 weeks. Pre-implementation of the 48-hour antibiotic stop date, the average duration of initial antibiotics was 3.31 days; and post-implementation, the average duration decreased to 2.68 days. Pre-implementation, the average total LOS was 20.7 days; and post-implementation, the average total LOS increased to 26.8 days. Antibiotic re-initiation within 10 days of stopping initial ampicillin/gentamicin combination therapy increased from 2% pre-implementation to 5% post-implementation with the average gap before re-initiation increasing from 5 days pre-implementation to 7.6 days post-implementation. The average duration of those re-initiated antibiotics increased from 4 days pre-implementation to 6 days post-implementation. Of the cultures that were collected pre-implementation, 2% were positive from the blood, 1% were positive from the urine, and 0% were positive from the CSF. Of the cultures that were collected post-implementation, 2% were positive from the blood; none from both urine and CSF were collected. All-cause mortality was 0% in the pre-implementation group and 4% in the post-implementation group.

CONCLUSIONS: Within the Baptist Health System, the implementation of a 48-hour antibiotic stop date on ampicillin/gentamicin combination therapy on admission to the NICU decreased the average duration of initial antibiotics, however, the average total LOS post-implementation increased, which is likely to be multifactorial and potentially related more to acuity of illness. The cause of death for all 4 patients post-implementation was found to be unrelated to the 48-hour stop date or lack of antibiotic treatment. The pre-implementation results appear more favorable for our patients, especially considering the average duration was not far from 48 hours, but many confounders have been identified that could have skewed these results. Further tests are needed to determine the causality of these results in our NICU patient population.

12:20pm – 12:35pm S **Impact of Social Determinants of Health on Escalation to Antipsychotic Polypharmacy** Athena A

Presenters: Kaitlin Grout

TITLE: Impact of Social Determinants of Health on Escalation to Antipsychotic Polypharmacy

AUTHORS: Kaitlin Grout, Ashley Glass

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Recommendations for antipsychotic polypharmacy (APP) are exclusive to schizophrenia guidelines, which cite weak and inconsistent evidence regarding possible benefits. Although the risks associated with APP such as extrapyramidal symptoms, sedation, and metabolic effects, have been shown to outweigh the benefits in most cases, APP is still utilized in clinical practice. This project will describe the incidence of select social determinants of health (SDoH) in Veterans prescribed APP at the Salisbury VA Healthcare System (SVAHCS) and determine if there are SDoH associated with rapid escalation from antipsychotic monotherapy to APP. Identifying these SDoH aims to increase conscientious prescribing among providers considering APP.

METHODOLOGY: This is a retrospective quality improvement project. Chart reviews were performed on Veterans with at least two different active, scheduled antipsychotic prescriptions as of December 12, 2023 from the SVAHCS. Data collected included baseline characteristics, pertinent mental health and antipsychotic history, and select SDoH. SDoH included access to affordable health care and level of economic stability provided through the VA (determined by service connection), poverty rate in county of residence, history of housing insecurity, and highest level of education achieved. Rapid escalation to APP was defined as less than a 4-week trial of the primary antipsychotic before a second antipsychotic was added. Descriptive statistics were used to evaluate for trends in characteristics and SDoH in those on APP. Potential associations between SDoH and rapid escalation from monotherapy to APP were evaluated using chi-square.

RESULTS: A total of 105 patients were included. The average age at which patients were initiated on APP was 50 years old (SD=14.4). The majority of patients were male (84%), and 57% identified as a minority race (African American, Asian, or Pacific Islander). On average, patients trialed 1 antipsychotic (SD=1.36) before progressing to APP. Only 12% of patients were enrolled in Mental Health Intensive Case Management (MHICM) at the time of chart reviews. 64% of patients were diagnosed with schizophrenia spectrum or other psychotic disorders (SSPD), 10% of patients were not diagnosed with a psychotic disorder but exhibited psychotic features, and 27% of patients did not exhibit psychotic features. Results showed that patients with a lower tier of health care coverage and less economic support through the VA were more likely to be rapidly escalated to APP (P=0.023). Additionally, there was a significant association between history of tobacco use disorder and rapid escalation to APP (P=0.010). There were not statistically significant associations between timing of escalation to APP and age, race, gender, mental health diagnosis, poverty rate in city of residence, highest level of education attained, history of housing insecurity, alcohol use disorder, or illicit substance use disorder.

CONCLUSIONS: There appears to be an association between certain SDoH and rapid escalation to APP. Specifically, patients with a history of tobacco use disorder and patients with a lower tier of health care coverage and economic support through the VA were more likely to be initiated on APP without an adequate trial of antipsychotic monotherapy. Although there was not a significant association between other SDoH and rapid escalation to APP, trends suggest that factors such as older age, lower level of education, and more serious mental health diagnoses may predispose patients to more rapid escalation to APP. Interestingly, over one third of patients did not have a diagnosis of SSPD, meaning that they were escalated to APP despite a lack of guideline recommendations supporting this treatment modality for other diagnoses. These results reflect the prescribing habits at one outpatient facility. Inter-facility studies with larger sample sizes would be useful in further identifying associations between SDoH and rapid escalation to APP.

1:50pm – 2:05pm M **Impact of Home Blood Pressure Monitoring and Pharmacist Intervention on Uncontrolled Hypertension** Athena H

Presenters: Phu Duong

TITLE: Impact of Home Blood Pressure Monitoring and Pharmacist Intervention on Uncontrolled Hypertension

AUTHORS: Phu Duong, Ryan Cromer, Emily Brinkman, Aayush Patel

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Hypertension accounts for 40% of attributable risk for cardiovascular mortality. With the expanding role of pharmacists and evidence to suggest improved blood pressure (BP) control when combining home blood pressure monitoring (HBPM) with pharmacotherapy and counseling, a pharmacist-led initiative was created in October of 2023 within an indigent care clinic. Primary care providers refer patients with uncontrolled hypertension they feel would benefit from HBPM to the pharmacist managed clinic. On the initial visit pharmacists conduct a chart review, patient interview, and assessment of their hypertension control and medication adherence; and provide disease state education and instructions for HBPM. Follow-up occurs 2-4 weeks after the initial visit where the pharmacist reassesses the patient, completes additional education, and adjusts pharmacotherapy if warranted. Additional follow-up occurs as deemed appropriate. The objective of this study is to assess the impact of HBPM and pharmacist intervention on both home and clinic BP.

METHODOLOGY: This was an IRB-approved, retrospective chart review of patients enrolled in the pharmacist-led HBPM initiative from October 2023 to February 2024. The primary outcome was the mean change in systolic and diastolic BP pre and post intervention for both home and clinic readings. The secondary outcome was to determine the percentage of patients achieving a BP goal of less than 130/80 mmHg based on 1) home BP readings and 2) clinic readings. Additionally, the number and type of pharmacist interventions were included in the secondary outcomes. Inclusion criteria were patients referred to the pharmacist-managed clinic for HBPM. Patients with stage 4 chronic kidney disease were excluded. Baseline clinic BP values were the average readings from the 3 clinic visits prior to the first pharmacist visit. Follow up clinic BP values and control were based on the average of the 3 clinic BP readings prior to the end of follow-up. Baseline home BP values were the average of the first week of home BP readings after the initial visit with the pharmacist and prior to any changes in pharmacotherapy. Follow up home BP values and control were based on the average of the last week of home BP readings at the end of follow-up. The number and type of pharmacological interventions made were recorded.

RESULTS: The averages for home blood pressure readings were collected using data from the first week of the baseline home blood pressure readings and data from the last week of readings prior to the final pharmacist visit. There was an average reduction of 2.6 millimeter of mercury in the systolic reading and 3.8 in the diastolic reading in the home blood pressure readings.The averages for clinic blood pressure readings were collected using at least 1 to 3 data points from the pre- and post-implementation phase. For the clinic blood pressure readings, there was an average reduction of 7 in the systolic reading and 5 in the diastolic reading. Overall, the primary outcomes showed no statistical significance. For the secondary outcomes, the proportion of patient that met home BP goal was 17%, and the proportion of patient that met clinic BP goal was 33%. The number of pharmacist intervention is 19 over a total of 24 visits with education being the most common intervention. The p-values for the proportions were calculated using a chi-squared test and the results were not statistically significant.

CONCLUSIONS: Although our study didn't conclusively show improvement of overall hypertension control with home blood pressure monitoring, previous studies have shown that home blood pressure monitoring can improve hypertension control, but is reliant on proper use and coordination with the provider.

1:50pm – 2:05pm F **Impact of Pharmacist Involvement in the Emergency Department Post-Discharge Culture Review Process** Athena D

Presenters: Devon Tousignant

TITLE: Impact of Pharmacist Involvement in the Emergency Department Post-Discharge Culture Review Process

AUTHORS: Devon Tousignant, Komal Patel

OBJECTIVE: To evaluate the impact of pharmacist involvement in the ED post-discharge culture review process.

SELF ASSESSMENT QUESTION:

BACKGROUND: Post discharge culture review processes in the emergency department (ED) are utilized to ensure that antimicrobial regimens are appropriate for patients who are discharged on empiric antimicrobial regimens before culture results finalize. Given the integral role of pharmacists in antimicrobial stewardship, pharmacist involvement in the post discharge culture review process can help ensure optimal antimicrobial use, enhance patient safety, and mitigate increasing antibiotic resistance. Recent literature has evaluated the impact of pharmacist involvement in post discharge culture review programs and has shown increases in the number of interventions made, reductions in time to intervention and decreases in readmission rates.

METHODOLOGY: This was an Institutional Review Board approved quasi-experimental comparative study designed to evaluate the ED post-discharge culture review process before and after clinical pharmacist involvement. The pre-intervention period utilized a nurse-driven review process with ED provider assessment of the culture results and prescription changes. In the post-intervention period, clinical pharmacists reviewed the culture results and provided recommendations on appropriate antimicrobial therapy modifications. The final treatment plan, decided upon in collaboration between the ED provider and clinical pharmacist, was then communicated to the patient by the pharmacist. Patients were included if they had a culture collected in the ED that yielded a positive result after the time of ED discharge. Patients excluded from data collection included those less than 18 years old, those where no antibiotics were indicated prior to or post-culture result, and patients who returned to the ED or were admitted for intravenous antibiotics within 72 hours of the ED visit. The primary outcome was incidence of optimal antimicrobial therapy post-culture result, a composite of optimal drug, dose, and duration, determined based on guideline recommendations, the hospital’s antibiogram and patient specific factors including renal function and allergies. Key secondary outcomes evaluated the individual components of the primary outcome as well as the incidence of readmissions due to infection within 30 days.

RESULTS: A total of 190 patients were included, 121 in the pre-intervention group and 69 in the post-intervention period. The primary outcome of optimal antimicrobial therapy received after the culture resulted occurred in 38.8% of patients in the pre-implementation phase and 75.4% of patients in the post-intervention phase. The secondary outcomes of optimal drug, dose, and duration were also significantly different between the pre- and post-intervention period. Optimal antimicrobial agent was chosen in 78.5% and 98.6% of patients in the pre-implementation group and post-implementation group, respectively. In the pre-implementation period optimal dose occurred in 85.95% of patients and 95.7% of patients in the post-implementation period. Optimal duration occurred in 47.9% patients in the pre-implementation group and 75.4% patients in the post-intervention group.

CONCLUSIONS: There was a statistically significant difference in both the composite and individual components (optimal drug, dose, and duration) of optimal antimicrobial regimen following pharmacist involvement in the ED post-discharge culture review process. Integration of clinical pharmacist services into an emergency department post-discharge culture review process increases the incidence of optimal antimicrobial therapy and promotes improved antimicrobial stewardship efforts within outpatient populations.

1:50pm – 2:05pm M **Impact of Pharmacist Targeted Interventions for Management of Chronic Kidney Disease in Hypertension** Athena G

Presenters: Kendall Heetderks

TITLE: Impact of Pharmacist Targeted Interventions for Management of Chronic Kidney Disease in Hypertension

AUTHORS: Kendall Heetderks, Rachel Shelley, Pete Koval

OBJECTIVE: This study aims to evaluate the effectiveness of pharmacist-driven interventions in initiating optimized therapy for hypertension and CKD.

SELF ASSESSMENT QUESTION:

BACKGROUND: Hypertension is the second leading cause of chronic kidney disease (CKD) in the United States, following diabetes. The Kidney Disease Improving Global Outcomes (KDIGO) guidelines recommend initiation of renin-aldosterone-angiotensin system inhibitors (RAASi) in all patients with CKD and an estimated glomerular filtration rate (eGFR mL/min/1.73m2) greater than 15 to slow progression to end stage renal disease (ESRD). Additionally, both the DAPA-CKD and EMPA-Kidney trials found a significant reduction in progression of proteinuric CKD in patients initiated on sodium-glucose cotransporter 2 inhibitors (SGLT2i) dapagliflozin or empagliflozin. This study aims to evaluate the effectiveness of pharmacist-driven interventions to optimize therapy for hypertension and CKD.

METHODOLOGY: This was a single center, prospective cohort, IRB-approved, pre-post analysis study conducted at the Cone Health Family Medicine Center in Greensboro, NC. This is a primary care clinic serving patients of all ages including pediatric, geriatric and prenatal patients regardless of financial status. The clinic is a teaching site with an embedded family medicine residency program, pharmacy residents and pharmacy rotation students. A permanently embedded pharmacist provides medication management services with a collaborative practice agreement. Patients with hypertension and an eGFR less than 60 within the past year were included in the study. Patients with heart failure and diabetes were excluded. The pharmacist reviewed patient charts and provided recommendations for CKD and hypertension management to physicians Time permitting, the pharmacy team would perform direct pharmacy interventions consisting of face-to-face recommendation made to a provider on the day of the appointment. Recommendations included initiation of an SGLT2i, initiation or titration of a RAASi, and/or collection of a urine albumin creatinine ratio (UACR) for evaluation of proteinuria. Two months after the interventions were sent, patient charts were assessed for optimization of CKD treatment. Optimization was defined as a urine albumin to creatinine ratio (UACR) within the past year, taking a RAASi if eGFR greater than 5 and taking an SGLT2i if eGFR greater than 0 and UACR greater than 5 mg/mmol

RESULTS: Among 280patients identified with hypertension and GFR < 60, 106 (37.9%) qualified for the study based on exclusion criteria. Of these 106, 21 were excluded due to missing their appointment, leaving 85 patients in the final evaluation. The mean demographics of patients included in the study were 69 years old with 63 (74.1%) identifying as African American and 20 (23.5%) identifying as white. The mean baseline eGFR was 50 mL/min/1.73m2. Prior to the study intervention, 1 (1.2%) patient had a UACR collected within 1 year of their appointment date, 58 (68.2%) were prescribed a RAASi, and 2 (2.3%) were prescribed an SGLT2i. A total of 193 individualized interventions were recommended via chart message. Five (5.8%) patients were on optimized therapy post-intervention. Of the 193 recommendations sent, 79 (40.9%) included UACR collection, with 10 (12.7%) accepted; 75 (38.9%) recommended SGLT2i initiation, with 4 (5.3%) accepted; 21 (10.9%) suggested RAASi initiation, with 7 (33.3%) accepted; and 18 (9.3%) proposed RAASi titration, with 4 (22.2%) accepted.

CONCLUSIONS: Family medicine providers demonstrated a higher likelihood of accepting recommendations for RAASi initiation or titration compared to SGLT2i initiation or UACR collection. The overall rate of physician acceptance was low, suggesting that chart messages may not be an effective mechanism for optimizing CKD therapy. Further exploration of alternative intervention strategies is warranted.

1:50pm – 2:05pm C **Impact of IV Hydrocortisone in Patients on Vasopressors Following Cardiopulmonary Bypass Surgery** Parthenon 2

Presenters: Emma Paytes

TITLE: Impact of IV Hydrocortisone in Patients on Vasopressors Following Cardiopulmonary Bypass Surgery
AUTHORS: Emma Paytes, Breanne Mefford, Arran Montgomery, Bryan Love, Jenna Cox
OBJECTIVE: Identify the impact of postoperative glucocorticoids after cardiopulmonary bypass surgery.
SELF ASSESSMENT QUESTION: Do postoperative glucocorticoids improve clinical outcomes after cardiopulmonary bypass surgery?
BACKGROUND: Although 2019 EACTS Guidelines on Cardiopulmonary Bypass in Adult Cardiac Surgery recommend against routine use of prophylactic corticosteroids, perioperative glucocorticoids are still often used to mitigate hypotension, cardiac arrhythmias and respiratory failure following cardiopulmonary bypass surgery. This study evaluated the effect of postoperative intravenous (IV) hydrocortisone use after on-pump coronary artery bypass grafting surgery, which has not been described in current literature.
METHODOLOGY: The Society of Thoracic Surgeons database was used to identify patients at a single academic medical center from 2021 to 2023. Adult patients who underwent on-pump coronary artery bypass surgery and required vasopressor support postoperatively were included. Patients who were in atrial fibrillation at the start of surgery were excluded. The primary outcome will evaluate incidence of postoperative atrial fibrillation in patients who received or did not receive IV hydrocortisone postoperatively. Secondary outcomes will evaluate the impact of IV hydrocortisone on pulmonary complications, insulin requirements, hospital length of stay, surgical site infections, and vasopressor requirements. A logistical regression analysis will be performed to further elucidate the relationship between hydrocortisone and atrial fibrillation and identify variables that influence the incidence of postoperative atrial fibrillation.
RESULTS: In progress
CONCLUSIONS: In progress

1:50pm – 2:05pm R **Emergency Room Use of Non-Steroidal Anti-Inflammatories in Veterans on Direct Oral Anticoagulants** Parthenon 1

Presenters: Emily Schafhauser

TITLE: Emergency Room Use of Non-Steroidal Anti-Inflammatories in Veterans on Direct Oral Anticoagulants

AUTHORS: Emily Schafhauser, Hannah Knox, Lisa Dykes

OBJECTIVE: Assess the safety of non-steroidal anti-inflammatories in Veterans taking direct oral anticoagulants

SELF ASSESSMENT QUESTION: What characteristics may increase the patient's risk of bleeding if prescribed a NSAID?

BACKGROUND: Non-steroidal anti-inflammatory drugs (NSAIDs) are used in the acute setting for a wide variety of pain and inflammatory conditions. By preventing the synthesis of thromboxane through cyclooxygenase (COX) enzyme inhibition, NSAIDs prevent platelet aggregation and increase the risk of bleeding. The use of NSAIDs becomes of concern when used in patients with a predisposed bleed risk from use of an anticoagulant. Thus, the decision to use an NSAID in the emergency department (ED) can be challenging. Previous research has compared bleeding risk between antiplatelets, direct oral anticoagulants (DOACs), and warfarin. The purpose of this project was to evaluate the safety of short courses of NSAIDs in patients anticoagulated with a DOAC.

METHODOLOGY: In this retrospective, quality improvement project, we evaluated the safety of a short course of ED prescribed NSAID therapy in Veterans anticoagulated with a DOAC who were seen in the Ralph H. Johnson Veterans Affairs Health Care System ED for an acute pain or inflammatory condition between August 31, 2018, and August 31, 2023. Patients were stratified based on receipt of NSAID therapy and the incidence of major or clinically relevant nonmajor bleeding as defined by the International Society on Thrombosis and Haemostasias (ISTH) criteria. A random sample of the Veterans who did not receive an NSAID was performed to better compare the two groups. We used the Corporate Data Warehouse (CDW) and Computerized Patient Record System (CPRS) to collect data and determine eligibility for chart review. The primary outcome was major or clinically relevant nonmajor bleeding while the secondary outcome was to identify baseline characteristics that may increase or decrease the risk of bleeding.

RESULTS: There were a total 1381 Veterans identified for this project. Of these, 122 received an NSAID prescription while the no-NSAID group sampling yielded 126 out of the remaining 1259 Veterans. The primary outcome was followed for 30 days after initial ED visit. The rate of major or clinically relevant nonmajor bleeding was 1.6% in the NSAID group, as compared with 4.8% in the no-NSAID group ($p = 0.28$). There were no deaths related to bleeding during the project time period. Naproxen and meloxicam were the most common NSAIDs prescribed (78.5%). The majority of patients received a high dose NSAID (87.5%) for a total of 7-10 days (88%). Similarities existed between the two patients who experienced bleeding events in the NSAID group such as the use of apixaban, documented history of previous NSAID use, receipt of a 10-day course of NSAID therapy, with moderate CHA2DS2-VASc and HASBLED scores. The six patients in the no-NSAID group that experienced bleeding had more variation among baseline characteristics.

CONCLUSIONS: NSAID use did not increase bleeding events in the patients included in this project. NSAID agent, dose, and duration selection did not make a difference in terms of bleeding. Appropriate patient selection by ED providers and pharmacist intervention may have contributed to the low number of bleeding events in the NSAID group. Longer duration of NSAID use and a HASBLED score greater than 4 may contribute to increased bleed risk, however, more data is needed to better define factors that increase and decrease bleed risk.

1:50pm – 2:05pm R **Impact of Lactated Ringer's on Lactate Normalization in Septic Patients** Olympia 1

Presenters: Davis Brady

TITLE: Impact of Lactated Ringer's on Lactate Normalization in Septic Patients

AUTHORS: Davis Brady, Sylvia Saint-Amand, Katherine Miller

OBJECTIVE: At the conclusion of this presentation, the audience will be able to describe appropriate initial fluid resuscitation in septic patients as well as assess the clinical significance of the two study fluids analyzed in this retrospective study.

SELF ASSESSMENT QUESTION: True or False: NS was found to statistically reduce time to lactate normalization compared to LR when used for initial fluid resuscitation in septic patients.

BACKGROUND: The Surviving Sepsis Guidelines recommend patients presenting with sepsis-induced hypoperfusion or septic shock receive 30 mL/kg of a balanced crystalloid within the first three hours of resuscitation. The guidelines recommend using a balanced crystalloid such as normal saline or lactated ringer's, however, they make no suggestion on which of the two fluids is preferred. The purpose of this study is to assess the impact of lactated ringer's versus normal saline on lactate normalization when utilized for initial fluid resuscitation of septic patients.

METHODOLOGY: This retrospective, observational study evaluated adult patients who were admitted to UNC Health Southeastern between July 23rd, 2022 and October 15th, 2023 with a diagnosis of sepsis and who received lactated ringer's or normal saline for initial fluid resuscitation. This study's primary objective was to assess the impact of lactated ringer's on lactate normalization. The primary outcome measure is time to lactate normalization compared to similar patients who received normal saline for initial fluid resuscitation. Patients were categorized into two groups based off the initial fluid resuscitation they received.

RESULTS: There were 1306 patients screened for inclusion to this study; 1183 patients were excluded, leaving 123 patients included in the study. Of those 123 patients, 49 were included in the LR arm while 74 were included in the NS arm. Baseline characteristics were similar between the two groups. The primary outcome, time to lactate normalization, was not found to be statistically significant between the two groups [LR 287.0 ± 93.3 minutes vs NS 253.3 ± 64.3 minutes (p = 0.28)]. Secondary outcomes including hospital length of stay [LR 7.78 ± 1.68 days vs NS 6.59 ± 1.32 (p = 0.20)], hospital mortality [LR 4 (8.16%) vs NS 7 (9.59%) (p= 0.53)], ICU length of stay [LR 6 ± 5.04 days vs NS 4 ± 2.15 days (p = 0.22)], ICU mortality [LR 2 (16.67%) vs NS 6 (42.86%) (p = 0.16)], incidence of hyperchloremia [LR 2 (4.08%) vs NS 1 (1.37%) (p= 0.35)], and incidence of metabolic acidosis [LR 5 (33%) vs NS 4 (31%) (p = 0.60)] were not found to be statistically significant between the two groups. Change in baseline serum creatinine was unable to be assessed due to inconsistencies on chart review, predominately the timing of lab draws.

CONCLUSIONS: There was no statistically significant difference found in time to lactate normalization between LR and NS when used for initial fluid resuscitation in septic patients during the study period at UNC Health Southeastern.

1:50pm – 2:05pm R **Use of Methylene Blue in Refractory Septic Shock** Olympia 2

Presenters: Ashley Oh

TITLE: Use of Methylene Blue in Refractory Septic Shock

AUTHORS: Ashley Oh, Anh Nguyen, Mydien Tran

OBJECTIVE:

SELF ASSESSMENT QUESTION: What is the mechanism of action of MB that counteracts smooth muscle relaxation in distributive shock?

BACKGROUND: Septic shock is an acute syndrome of circulatory failure characterized by a loss of peripheral vascular tone and persistent hypotension. It is associated with a mortality rate of 33% and up to 90% in cases of refractory septic shock. Previous studies have shown that methylene blue (MB) reduces vasopressor requirements and improves cardiac function by increasing arterial pressure while maintaining cardiac output in patients with refractory septic shock. Despite these promising results, interest in MB treatment was lost `after a phase III trial found a significant increase in mortality in patients with septic shock. A recent study re-introduced MB utilization in these patients, specifically as an early adjunctive treatment. The study found that MB administered within 24 hours of septic shock diagnosis reduced time to vasopressor discontinuation and shortened length of Intensive Care Unit (ICU) and hospital stays with no reports of severe adverse effects. Given the mixed results regarding mortality benefit in the available literature, this study was conducted to assess the role of adjunctive MB treatment in ICU patients with refractory septic shock in a community setting.

METHODOLOGY: This was a single-center, IRB-approved, retrospective study conducted at two community hospitals within the same operating unit from October 2022 to October 2023. All adult patients admitted into the ICU and treated with MB for refractory septic shock were evaluated in this study. Refractory septic shock was defined as having all of the following: serum lactate greater than 2 mmol/L after adequate fluid resuscitation and maintenance of MAP greater than 65 mm Hg with vasopressor requirements of norepinephrine greater than 0.2 mcg/kg/min and equivalents, vasopressin 0.03 IU/min, and stress dosing of hydrocortisone 200 mg/day. The primary end point was all-cause mortality at 28 days. Secondary endpoints included time to all vasopressor discontinuation, time to discontinuation of first vasopressor, ICU length of stay, and days on mechanical ventilation.

RESULTS: The primary end point of all-cause mortality at 28 days was 78% (n=9). Secondary end points included median time to vasopressor discontinuation of 69.5 hours, median time to discontinuation of first vasopressor agent of 55.5 hours, median ICU length of stay of 12 days, and median days on mechanical ventilator of 8.5 days.

CONCLUSIONS: Use of MB in refractory septic shock was not associated with a mortality benefit at 28 days or significant changes in time to vasopressor discontinuation. Limitations include the retrospective study design, lack of a comparator group, and small sample size. Further studies are required to determine appropriate timing of use to mimic potential clinical benefit seen in previous studies.

1:50pm – 2:05pm F **Evaluation of a penicillin allergy clarification team on the usage of beta-lactam alternatives** Athena C

Presenters: Trish Elder

TITLE: Evaluation of a penicillin allergy clarification team on the usage of beta-lactam alternatives

AUTHORS: Trish Elder, Madeline Belk, Jonathan Edwards

OBJECTIVE: To assess the impact of a pharmacy-led penicillin allergy clarification team on the reduction of "unknown penicillin" allergies documented in the electronic health record.

SELF ASSESSMENT QUESTION: What factors would qualify a patient for a penicillin allergy clarification interview? A) Patient admitted to a HH affiliated hospital B) Onset within the last 10 years C) ICU patient who is intubated D) Reaction to penicillin unknown

BACKGROUND: Approximately 10% of adults report an allergy to penicillin. However, research shows only 1 in 10 of those with a reported penicillin allergy has a true IgE-mediated reaction. Having a penicillin allergy label has been associated with increased avoidance of preferred beta-lactam antibiotics and negative health consequences, including reduced efficacy in certain clinical situations, adverse events, and increased costs. The purpose of this research is to assess the impact of a pharmacy-led penicillin allergy clarification team on the usage of beta-lactam alternatives at a large community hospital.

METHODOLOGY: A retrospective, institutional review committee exempt, chart review was conducted to evaluate all patients with a documented penicillin allergy admitted to a large community hospital between July 2023 and March 2024. Data was collected from the electronic medical record (EHR) and analyzed using descriptive statistics. The following pre-implementation data was collected: patient demographics, documented penicillin allergy reaction, severity, and date of onset, outpatient or inpatient history of prior beta-lactam antibiotic tolerance, type of antibiotics utilized during hospitalization, rate of beta-lactam antibiotic alternative discontinuation, pertinent cultures, infectious diseases consultation, 90-day CDI rates, and 30 and 90-day readmission rates. Hospital-specific data and current policies were reviewed to identify areas of improvement, which included a pharmacy-led penicillin allergy clarification team comprised of pharmacy students and clinical pharmacy technicians. Post-implementation data will include the same metrics as listed for the pre-implementation data set.

RESULTS: A total of 143 patients were included in the study: 88 in the “pre-intervention” (PRE) group and 55 in the “post-intervention” (POST) group. The baseline characteristics were similar between groups. The amount of unknown penicillin allergies was higher in the PRE group compared to the POST group at 60% and 27%, respectively. The primary endpoint was appropriate documentation, defined as documentation of allergies reaction, severity, and onset, as well as clarification of prior tolerance. The primary endpoint was 24/88 (27%) in the PRE group and 31/55 (56%) in the POST group. The secondary endpoints included specialty responsible for updated allergy documentation, beta-lactam alternative discontinuation, pharmacy interventions made, and patient questionnaires.

CONCLUSIONS: The implementation of a pharmacy-led penicillin allergy clarification team demonstrated a positive trend in the reduction of unknown penicillin allergies documented in the EHR. This intervention lead to improved documentation in allergy reaction and severity, an increase in the amount of pharmacy-led interventions, and a reduction in the usage of beta-lactam alternatives.

1:50pm – 2:05pm T **Evaluation of Alcohol Withdrawal Syndrome Following Implementation of mMINDS** Athena B

Presenters: Dana Thorvilson

TITLE: Evaluation of Alcohol Withdrawal Syndrome Following Implementation of mMINDS

AUTHORS: Dana Thorvilson, PharmD; Holly McLean, PharmD; Charleen Melton, PharmD; Katie McLaurin, PharmD

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The Clinical Instrument Withdrawal Assessment for Alcohol, Revised (CIWA-Ar) has been the standard assessment tool to treat alcohol withdrawal syndrome (AWS). CIWA-Ar is a validated assessment tool; however, it has not been extensively researched in intensive care units and includes subjective evaluations. The subjective nature of the CIWA-Ar scale limits its accuracy and use in patient populations who lack communicative abilities or have inadequate cognitive status leading to potential excessive benzodiazepine usage and subsequent adverse related events. The modified Minnesota Detoxification Scale (mMINDS) was studied in higher acuity patients and relies on objective measures, making it an appropriate choice for patients experiencing active AWS requiring ICU-level care. At our institution, a diazepam-based CIWA-Ar protocol was implemented in June 2022 and in March 2023, the facility transitioned to mMINDS. The purpose of this study is to review patient outcomes utilizing the mMINDS assessment tool in comparison to the CIWA-Ar assessment tool for the management of patients experiencing AWS.

METHODOLOGY: Over a specified 3-month period, patients admitted and treated for AWS using CIWA-Ar or mMINDS diazepam-based protocols were retrospectively identified through the hospital’s electronic medical record. Patients included were at least 18 years of age, were treated for AWS using the CIWA-Ar or mMINDS protocol and received at least one dose of diazepam. The primary endpoint of this study is to assess the amount of time it takes to reach goal CIWA-Ar and goal mMINDS scores utilizing diazepam-based protocols. Secondary endpoints include evaluating patient length of stay, assessing escalation in level of care identified by requiring dexmedetomidine for withdrawal symptoms, assessing escalation in level of care identified by transfers into intensive care units, and comparing the total dose of diazepam administered. The following data will be collected: demographic information (gender, age, race), past medical history including seizures and delirium tremens associated with AWS and non-alcohol substance use disorder, patient admission date, time, and location, initial CIWA-Ar and mMINDS scores, time at which goal CIWA-Ar and mMINDS scores are achieved, hospital length of stay from admission to discharge, number and dose of diazepam administrations, transfers into the ICU and adjunct therapy needs including dexmedetomidine.

RESULTS: TBD

CONCLUSIONS: TBD

1:50pm – 2:05pm D **Evaluation of Missed Medication Doses Within the Hospital System.** Athena J

Presenters: Julia Deel

TITLE: Evaluation of Missed Medication Doses Within the Hospital System.

AUTHORS: Julia Deel, Ann Hylton, Daniel Rose

BACKGROUND: The purpose of this study is to evaluate the medications that are prescribed but fail to be administered in the hospital system. Often, once the medication is prescribed providers perceive that the medication will be given on the schedule in which it was ordered. Missed medication doses have the potential to cause patient harm, increase length of hospitalization, decrease chance of recovery from diseases, and even result in death.

METHODOLOGY: Single center, retrospective, observational, quality improvement study to be conducted at Bristol Regional Medical Center. Patients are included if they are hospitalized for more than 24 hours and have an order for at least one medication. Patients will be randomly selected for chart review with a goal of 100 patient encounters to be reviewed. The primary objective is to quantify the percentage of scheduled medication doses ordered and not administered. Secondary objectives include the number of non-administered medications per patient and reason for non-administration or delay.

RESULTS: 82% of patients experienced a missed medication administration for an ordered scheduled medication in a 5-day reviewed window of admission. 12.65% (755 missed medication doses, 5967 ordered doses) of scheduled medication doses ordered were not administed within the 5-day reviewed window of admission. The median of non-administered medications per patient was 3. Of those missed medications, 127 were missed due to patient refusal, 124 were missed due to no appropriate reason documented, 95 missed due to patient being NPO, 41 missed due to hold parameters being met, and 4 missed per provider order.

CONCLUSIONS: Out of 100 patient charts reviewed, 12.65% of ordered medication doses were missed (755 missed medication doses, 5967 ordered doses). Of those missed medications, 127 were missed due to patient refusal, 124 were missed due to no appropriate reason documented, 95 missed due to patient being NPO, 41 missed due to hold parameters being met, and 4 missed per provider order. Out of the 100 patient charts reviewed 18 patients missed no medication doses.

1:50pm – 2:05pm Y **Incidence of Ruxolitinib- Associated Thromboembolism in Post-Allogeneic Stem Cell Patients** Athena A

Presenters: Trisha Sharma

TITLE: Incidence of Ruxolitinib- Associated Thromboembolism in Post-Allogeneic Stem Cell Patients

AUTHORS: Trisha Sharma, Minal Surati, Kevin Hall, Kristina Murphy, Danielle Roberts, Alexis Lopez

OBJECTIVE: Assess safety and identify risk factors of thrombosis in patients treated with ruxolitinib for GVHD

SELF ASSESSMENT QUESTION: Which medications can increase risk of thromboembolism?

BACKGROUND: Ruxolitinib is the only Janus Kinase (JAK) inhibitor with an approved indication for the treatment of graft versus host disease (GVHD). JAK inhibitors have growing safety concerns with several studies documenting the risk of thrombosis, leading to the FDA requiring a warning of 'increased risk of serious heart-related events' when used for chronic inflammatory conditions. This warning was not extended to ruxolitinib, however, several patients were identified who developed thrombosis while receiving treatment. The purpose of this study is to assess safety and identify risk factors of developing thrombosis in patients treated with ruxolitinib for GVHD.

METHODOLOGY: A single center, retrospective chart review was conducted on adult allogenic stem cell transplant patients started on ruxolitinib between January 2018 and June 2023 for graft-versus-host-disease (GVHD). The primary endpoint was to determine the incidence of thromboembolic events (TEE) with ruxolitinib use. An analysis of covariates was performed to identify risk factors for developing a TEE including, history of venous thromboembolism (VTE), concomitant high-risk medications, and pertinent labs at the time the event occurred.

RESULTS: The study population included seventy-four patients, majority being white males. There were no significant differences in patients baseline labs at the start of treatment. Of the seventy-four, eight patients developed a VTE after the start of their ruxolitinib treatment (11%). The median number of days between therapy initiation to TEE was 136 days. Of the eight patients, four of them had a history of VTE prior to initiating therapy with two of the four on direct oral anticoagulants while on ruxolitinib.

CONCLUSIONS: In patients being treated with ruxolitinib for GVHD, we noticed an incidence of TEE after starting ruxolitinib in some patients. A majority of the patients that developed a VTE had other risk factors increasing their susceptibility to TEE. Larger, prospective studies need to be conducted to see a true correlation between ruxolitinib and incidence of TEEs.

1:50pm – 2:05pm P **Impact of SVI in Opioid Naïve Patients following Continuous Fentanyl Infusions for COVID 19** Athena I

Presenters: Micaela seazzu

TITLE: Impact of SVI in Opioid Naïve Patients following Continuous Fentanyl Infusions for COVID 19
AUTHORS: Micaela Seazzu, Hannah Denham, Megan Hintz, Katherine Pleines, Aubrey Murphy, Shaun Rowe
OBJECTIVE: Analyze social vulnerability index in ICU for opioid-naive patients on continuous fentanyl.
SELF ASSESSMENT QUESTION: SVI's impact on COVID mech vent opioid scripts for vulnerable patients?
BACKGROUND: Respiratory failure secondary to COVID19 infection often progresses to mechanical ventilation and continuous sedation. While opioid infusions are a necessary component of management in these patients, they pose the risk of harmful longterm effects. Patients who require opioids at the time of discharge and patients who live in areas with a higher social vulnerability index (SVI) are more likely to have persistent opioid use in the months following hospitalization. This study evaluated the correlation between opioid naive patients' community SVI in relation to discharge opioid prescriptions after being continuously sedated on fentanyl drips.
METHODOLOGY: This single-centered, retrospective cohort study at an academic medical center occurred between January 1, 2020, and December 31, 2022. Adult patients (18 years of age) who were opioid naïve, had a positive COVID19 diagnosis, were admitted to a non-surgicaltrauma ICU, mechanically ventilated on fentanyl drip greater than 24 hours, with an SVI available, were included. Exclusion criteria included fentanyl drip that was not initiated in the ICU, opioid use before admission, death prior to hospital discharge, surgical or trauma patient, pregnant, incarcerated, or less than 18 years of age. The primary endpoint evaluated the rate of patients discharged on opioids stratified by their SVI score. Secondary endpoints evaluated intensive care unit (ICU) length of stay, (LOS) hospital LOS, 30,day mortality, healthcare resource utilization (30,day and 90,day readmission, emergency department visits, emergent surgical procedures), and opioid refills 30 days post-discharge.
RESULTS: Out of the 168 patients, those with a high (SVI) score (defined as ,0.75) were more likely to receive opioids at discharge (43.1% vs 58.5%). The average age was 54.1,14.9 years, with a predominantly white population of 87%, with males were more likely to receive a discharge prescription (58% vs 76.5%). In the SVI, 0.75 group, a higher percentage received opioids at discharge (27.2% vs. 52.9%; p=0.0275), longer ICU length of stay (12.6 days vs. 19.0 days, p,0.0127), and comparable hospital length of stay (23 vs. 25, p,0.1585). No significant difference between SVI groups was observed in 90-day emergency department visits (17.9% vs. 5.9%; p,0.5498), with median days similar to emergency department visits (44 days vs. 52 days; p,0.6203).
CONCLUSIONS: Opioid naïve patients with a higher social vulnerability index score who required mechanical ventilation and continuous opioid infusions were more likely to be discharged with an opioid prescription.

2:10pm – 2:25pm R **Acute Kidney Injury in Patients Receiving Continuous Infusion and Bolus Doses of Hypertonic Saline** Olympia 2

Presenters: Raegan Willoughby

TITLE: Acute Kidney Injury in Patients Receiving Continuous Infusion and Bolus Doses of Hypertonic Saline

AUTHORS: Raegan T. Willoughby, Karen Babb, Rachel Kile

OBJECTIVE: To determine the incidence of AKI versus no AKI defined using RIFLE criteria in patients receiving continuous infusions and/or bolus doses of hypertonic saline

SELF ASSESSMENT QUESTION:

BACKGROUND: Sodium is the dominant extracellular ion and is primarily regulated through water balance and renal excretion. Hypertonic saline has traditionally been a mainstay of treatment for hyponatremia and in recent years, the management of cerebral edema and increased intracranial pressures (ICP) in patients with traumatic brain injuries (TBI). The use of hypertonic saline continuous infusions in patients experiencing increased ICP and TBIs has been a recent area of interest as hypertonic saline is considered an acute care setting high alert medication and has often been associated with an increased risk of developing acute kidney injury (AKI). AKI is also commonly associated with a higher level of care, increased intensive care unit (ICU) stays, and increased mortality.

METHODOLOGY: A multicenter, IRB approved, retrospective chart review was conducted of patients greater than 18 years of age or older who received a continuous infusion or bolus dose of 1.8%, 3%, or 7% sodium chloride, and/or concentrated 23.4% sodium chloride intravenous push(es) between August 1, 2021 and August 31, 2023. Patients with a past medical history of syndrome of inappropriate antidiuretic hormone (SIADH), baseline serum sodium greater than or equal to 155 mmol/L, pre-hospital end-stage renal disease (ESRD) already receiving dialysis, or who had a documented AKI at admission were excluded. The primary objective of this study is to evaluate the incidence of AKI defined using the Risk, Injury, Failure, Loss of kidney function, and End-stage kidney disease (RIFLE) criteria in patients receiving continuous infusions and bolus doses of hypertonic saline. Secondary outcomes of interest are AKI rates with coadministration of nephrotoxic medications and hypertonic saline, overall length of hospital and intensive care unit stays, and baseline, average, and peak serum sodium, chloride, and osmolality measurements. Patients meeting inclusion criteria were analyzed and statistical tests were performed.

RESULTS: One hundred and sixty-nine patients were screened for inclusion, with 118 patients meeting inclusion criteria. Of those 118 included patients, 23 (19.5%) had an AKI as defined by the RIFLE criteria. Fourteen (60.9%) patients with the primary endpoint of AKI were classified into the “Risk” category as defined by the RIFLE criteria. There was no reported statistical significance between the two groups for any of the serum electrolyte values measured. The average intensive care unit (ICU) length of stay [9.0 ± 12.6 (mean ± SD)] and overall hospital stay [13.9 ± 15.1 (mean ± SD)] measured in the AKI group were longer than the length of stays seen in the no AKI group. The concomitant nephrotoxic medications analyzed by the number of medications received by each patient were not statistically significant.

CONCLUSIONS: The number of concomitant nephrotoxic medications administered with hypertonic saline may not have an impact on the development of AKI in this patient population. At the completion of the project, there were no observed electrolyte disturbances from hypertonic saline infusions or boluses. Overall, AKI from treatment with hypertonic saline may increase length of ICU and hospital stay, but more data is needed. Future directions include consideration of the clinical indication for receiving hypertonic saline, AKI rates in the comparison of one nephrotoxic medication to patients receiving hypertonic saline, and comparing continuous infusion and bolus doses of hypertonic saline to each other.

2:10pm – 2:25pm A **Impact on Medication Adherence Following Pharmacist-Led Procurement Service for P2Y12 Inhibitors** Athena J

Presenters: Brianna Reeder

TITLE: Impact on Medication Adherence Following Pharmacist-Led Procurement Service for P2Y12 Inhibitors

AUTHORS: Brianna Reeder, Lisa Gibbs, Julie Leonard, Jessica Yarbrough

BACKGROUND: Acute coronary syndrome (ACS) occurs when there is a mismatch between myocardial oxygen consumption and demand, most likely resulting from complete or incomplete coronary artery occlusion. ACS treatment often consists of percutaneous coronary intervention (PCI), a non-surgical, invasive procedure that relieves blockage of the coronary artery, thus improving coronary artery blood flow. Most PCI procedures utilize stent placement to achieve this goal. The risk of stent thrombosis post PCI is highest within the first 30 days and is associated with high rates of morbidity and mortality. Dual antiplatelet therapy (DAPT), defined as the combination of aspirin plus a P2Y12 inhibitor, following PCI lowers the risk of ischemic events, stent thrombosis, and death from cardiovascular causes. Additionally, DAPT is considered standard of care for secondary prevention of Major Adverse Cardiovascular Events (MACE) in patients post PCI. Medication adherence is essential to achieve these benefits. Common barriers to medication adherence include affordability and poor health literacy. Pharmacist involvement and education has proven effective in increasing patient compliance with medications. Improved compliance to discharge medications has been shown to reduce rates of readmission.

METHODOLOGY: This was a single center, pre-post implementation study conducted at Self Regional Healthcare in Greenwood, South Carolina. The electronic medical record system at Self Regional Healthcare was utilized to identify patients who underwent PCI from April 17 to July 23, 2023, prior to implementation of the pharmacist-led procurement service for P2Y12 inhibitors at discharge, and from July 24 to October 31, 2023, after implementation. Patients who received their P2Y12 inhibitor through the procurement service also received the following: affordability assessment, medication in hand prior to discharge, and medication education. The following data was collected: patient age, gender, ethnicity, smoking status, cardiac history, other comorbidities, discharge medications, and discharge pharmacy. The primary outcome for this study was medication adherence to the P2Y12 inhibitor prescribed at discharge defined as at least 80% of “on-time” fill history for a period of four months after hospital discharge. Secondary outcomes include MACE and bleeding events that resulted in a hospital admission to Self Regional Healthcare and/or other medical institutions in the surrounding area.

RESULTS: The study included 89 participants. In the pre-implementation group, there were 47 participants (53%) compared to 42 participants (47%) in the post-implementation group. The average participant was a 60-year-old Caucasian male with a history of cardiac surgery, coronary artery disease, and heart failure and a mean heart score of 6. Overall, there was no statistically significant difference in P2Y12 adherence between the pre-implementation and post-implementation groups. Although, participants in the post-implementation group were more compliant to their secondary prevention ACS medications than the pre-implementation group. Less patients in the pre-implementation group (10.6%) experienced MACE compared to the post-implementation group (16.7%). Both groups experienced the same number of bleeding events requiring hospital admission.

CONCLUSIONS: A pharmacist-led P2Y12 inhibitor procurement service increased patient’s adherence to secondary prevention ACS medications. Limitations of this study include it being a retrospective chart review with minimal sample size, reliance on accurate medication dispense reports, and the trial and error to determine the best process for the pharmacist-led procurement service. Future directions include implementation of this service

after hours and on weekends, as well as providing a 1-month pharmacist follow-up to ensure patient is tolerating their P2Y12 inhibitor and can still access and afford their medication.

2:10pm – 2:25pm M **Impact of pharmacist involvement in the transitions of care process at an academic medical center** Athena G

Presenters: Janet "Lindsey" Pitt

TITLE: Impact of pharmacist involvement in the transitions of care process at an academic medical center

AUTHORS: Lindsey M. Pitt, Kellie Ball, Sarah Byers, Jessica Sherrod

OBJECTIVE: Determine if pharmacists within the transitions of care process will reduce hospital readmissions

SELF ASSESSMENT QUESTION: Which of these intervention types were utilized by the transitions of care pharmacy team?

BACKGROUND: TOC represents a time of vulnerability for patients that contributes to errors, readmissions, and mortality.

METHODOLOGY: This is a retrospective chart review of TOC pharmacist interventions between October 2022 to August 2023.

RESULTS: No statistically significant difference in 30-day readmission rate was noted.

CONCLUSIONS: There was not a difference in readmission rates, but interventions were made by pharmacists to improve outcomes.

2:10pm – 2:25pm M **Implementation of Empagliflozin in Patients with Heart Failure with Reduced Ejection Fraction** Athena H

Presenters: Aurelia Willcoxon

TITLE: Implementation of Empagliflozin in Patients with Heart Failure with Reduced Ejection Fraction

AUTHORS: Aurelia Tess Willcoxon, Lauren Rass, Cassidy Moses, Autumn Gordon

OBJECTIVE: Describe how a Clinical Pharmacy Practitioner can provide care to Veterans diagnosed with HFrEF

SELF ASSESSMENT QUESTION: Which of the following interventions could a CPP implement in a Veteran diagnosed with HFrEF?

BACKGROUND: According to the Centers for Disease Control, approximately 6.2 million adults in the United States have heart failure and in 2018, it was listed as the cause of death on 379,800 death certificates. As shown in the EMPEROR-Reduced Trial, empagliflozin reduced the number of hospitalizations, reduced the need to intensify diuretics, and increased the odds of improvement in New York Heart Association functional class by 20%-40%. The purpose of this project was to initiate empagliflozin in Veterans with diagnosed heart failure with reduced ejection fraction (HFrEF) at the Central Alabama Veterans Health Care System's (CAVHCS) outpatient clinics.

METHODOLOGY: Patients diagnosed with HFrEF were identified by the Veterans Affairs National Academic Detailing Heart Failure dashboard. These patients were assessed for eligibility for empagliflozin initiation by chart review. Patients were included if they were managed by a CAVHCS outpatient clinic, had a diagnosis of HFrEF and calculated eGFR rate of greater than 20mL/min/1.732. Exclusion criteria included allergy to SGLT2 inhibitors, age greater than 80 years old, diagnosis of T1DM or diabetic ketoacidosis, institutionalized, or history of pancreatitis, heart transplant, lower limb amputation, or recurrent urinary tract infections. Eligible patients were scheduled into the implementing Clinical Pharmacy Practitioner's (CPP) clinic. CPP's initiated empagliflozin if appropriate for the individual patient and documented utilizing a specified template. After initiation of empagliflozin, patients were monitored and reassessed at a 30-day follow-up. The primary outcome assessed was number of patients started on empagliflozin. The secondary outcomes were number of safety outcome incidences (acute kidney injury, urinary tract infection, yeast infection, volume depletion, and bone fracture), and number of pharmacy interventions (dose optimization of current guideline directed medical therapy [GDMT], adding other GDMT medications, or discontinuing any interfering medications) at the 30-day follow up. Data was collected through chart review and descriptive analyses were performed.

RESULTS: Out of the 194 patients assessed from the Academic Detailing HFrEF dashboard, 125 were deemed eligible. These patients were generally African American males between the ages of 60-79. Of those 125, 57 (46%) were being followed by community care cardiology. Therefore, those patients were not contacted. Out of the remaining 68 eligible patients, 21 (17%) were initiated on empagliflozin, 7 (5%) were contacted and had a medication reconciliation completed, 5 (4%) deceased during implementation period, 8 (6%) were unable to be reached, and 1 (1%) declined to speak with CPP. The remaining 26 (21%) were not contacted due to time restraints. Of the 21 patients initiated on empagliflozin, 15 were initiated by CPP, 2 by CAVHCS cardiologist, 2 by CAVHCS nephrologist, and 2 by CAVHCS primary care physician. The secondary outcomes resulted in 0 safety incidences for the 21 patients initiated on empagliflozin. The CPPs were able to implement 11 additional pharmacy interventions (7 dose changes and 4 medication additions). The CPPs also completed nonpharmacologic interventions, such as ordering pill cutters, pill organizers, and weight scales.

CONCLUSIONS: Throughout the implementation period of August 21st, 2023 to October 26th, 2023, CPP's in CAVHCS outpatient clinics were able to start the clinically beneficial medication, empagliflozin, in 21 Veterans diagnosed with HFrEF. Once empagliflozin was started, there were no safety outcomes reported or acknowledged. Overall, this project allowed for the successful implementation of a critical medication in the treatment of HFrEF within the VA population by clinical pharmacists.

2:10pm – 2:25pm C **Evaluating the Safety of Aldosterone Antagonists in Patients with Heart Failure and Kidney Disease** Parthenon 2

Presenters: Najla Faddoul

TITLE: Evaluating the Safety of Aldosterone Antagonists in Patients with Heart Failure and Kidney Disease
AUTHORS: Najla Faddoul, Nathaniel Wayne, Laura Provost, Stephanie Albrecht
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Chronic kidney disease (CKD) is a prevalent comorbidity in patients with heart failure (HF). A decreased glomerular filtration rate (eGFR) is associated with increased myocardial fibrosis and loss of cardiac function, increasing the risk of arrhythmias and sudden cardiac death. The hormone aldosterone has been implicated as the main hormone in causing cardiac fibrosis and water retention in patients with HF. Mineralocorticoid antagonists (MRA), such as spironolactone and eplerenone, competitively bind to receptors at the aldosterone sodium-potassium exchange sites in the kidneys, allowing for sodium excretion and potassium reabsorption, attenuating HF progression. While the guidelines recommend MRAs for patients with CKD stage 1-3, there is concern for safety regarding their use in patients with an eGFR of less than or equal to 30 mL/min or a serum creatinine (Scr) of greater than or equal to 2.5 mg/d due to an increased risk of hyperkalemia. Additionally, landmark trials evaluating the use of MRAs for HF benefit excluded patients with stage 4 or 5 CKD. However, the use of MRA for HF in these patients is increasing. This study aims to assess whether there is an increased incidence of hyperkalemia in these patients to evaluate whether it is safe to initiate or continue MRAs.
METHODOLOGY: This was a single-center, retrospective chart review of adult patients admitted to Wellstar MCG Health between October 1st, 2022, and October 31st, 2023. Patients were included if they had a diagnosis of HF and CKD (defined as an eGFR of less than or equal to 30 ml/min/1.73² or Scr of greater than or equal to 2.5 mg/dL or end-stage renal disease requiring hemodialysis (HD) or peritoneal dialysis (PD)). Patients in our exposure group were on an MRA for at least 48 hours during their admission, while our comparator group did not receive any MRAs. The primary outcome was the incidence of elevated potassium greater than 5.5 mEq/L. Our secondary outcomes included incidence of elevated potassium greater than or equal to 6.5 mEq/L, highest recorded potassium value during their admission, hyperkalemia requiring intervention, MRA discontinuation, and MRA dose change.
RESULTS: In progress.
CONCLUSIONS: In progress.

2:10pm – 2:25pm R **Effect of Oral Adjuncts on Norepinephrine Duration in Patients with Elevated MAP Goals After Spinal Cord Injury** Olympia 1

Presenters: Kelsey Hamlin

TITLE: Effect of oral adjunct on norepinephrine duration in patients with elevated MAP goals after SCI

AUTHORS: Kelsey Hamlin, Lindsey Cooper

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Spinal cord injuries (SCI) are devastating neurological insults that can lead to significant hemodynamic disturbances. Secondary injury can occur due to impairment of blood flow that can lead to ischemia of the spinal cord therefore, maintaining spinal cord perfusion is recommended to improve neurological outcomes. The majority of data supporting the use of vasoactive agents in SCI pertains to intravenous (IV) agents with alpha and beta effects. The use of IV vasopressors can lead to complications as well as prolonged stays in the ICU. Enteral agents, such as midodrine and pseudoephedrine have been studied to decrease patients' needs for norepinephrine to maintain elevated MAP goals. The purpose of this study is to evaluate all patients requiring norepinephrine to maintain elevated MAP goals following spine surgery or spinal cord injury and if the addition of oral adjuncts, midodrine or pseudoephedrine, reduces the duration of norepinephrine.

METHODOLOGY: A retrospective cohort study of persons 15 years or older who are admitted to the trauma service for spinal cord injury or post spinal surgery between March 1st, 2021 and December 31st, 2023 at Prisma Health Richland, will be conducted. The primary outcome is the duration of IV norepinephrine in patients with and without oral adjuncts. Secondary outcomes include ICU length of stay, incidence of bradycardia (heart rate less than 50 beats/minute), incidence of tachycardia (heart rate greater than 110 beats/minute) and proportion of patients that were continued on an oral agent after MAP goals were discontinued.

RESULTS: In progress

CONCLUSIONS: In progress

2:10pm – 2:25pm R **Evaluating Sequential Nephron Blockade Compared to Loop Diuretics in the ICU** Parthenon 1

Presenters: Noelle Addair

TITLE: Evaluating Sequential Nephron Blockade Compared to Loop Diuretics in the ICU

AUTHORS: Noelle Addair, Andrew Shine, Jessica Briscoe, Lauren Caldwell, Jeremy Greenberg

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: De-resuscitation of critically ill patients following initial stabilization has been linked to improved mortality, hemodynamic stability, and shorter intensive care unit (ICU) length of stay (LOS). While loop diuretics are standard therapy, their use is limited by their dose ceiling and adverse effects. Sequential nephron blockade (SNB) is a novel strategy that combines multiple diuretics (a loop with at least one of the following: thiazide, carbonic anhydrase inhibitor, and/or aldosterone antagonist) with the goal of improving diuresis while mitigating adverse effects. This study seeks to compare the efficacy and safety of a standard diuretic strategy versus SNB in the ICU.

METHODOLOGY: This single-center, retrospective study included adult patients admitted to the pulmonary critical care service for at least 48 hours and who received at least one dose of a loop diuretic on two consecutive days. Patients were excluded if they received a continuous IV loop diuretic, received a loop diuretic prior to admission, received dialysis prior to admission or renal replacement therapy within 5 days of diuretic administration, or were COVID positive. Diuretic strategy utilized was assessed daily; each day a patient received only a loop diuretic was collected as part of the loop-only group, and each day a patient received loop plus a thiazide, carbonic anhydrase inhibitor, and/or aldosterone antagonist was collected as part of the SNB group. Crossover between groups was permitted as diuretic efficacy and safety outcomes were assessed daily. The primary outcome of this study was comparison of diuretic efficacy on diuretic day 1, assessed by the amount of diuresis 24-hours post-diuretic administration. Secondary outcomes included the comparison of diuretic efficacy on diuresis days 2-5 and safety, assessed by incidence of acute kidney injury and electrolyte abnormalities including hypokalemia, hypernatremia, and metabolic alkalosis.

RESULTS: Primary outcome: 24 hr fluid balance was statistically significant and clinically meaningful in terms of 24 hr fluid balance and urine output. Secondary outomces: No patients in the sequential nephron blockade group experienced an AKI; 13 patients in the loop group experienced AKI. A higher incidence of metabolic alkalosis was observed in the sequential nephron blockade group.

CONCLUSIONS:

Sequential nephron blockade was a more efficacious diuretic strategy for the de-resuscitation of critically ill patients.

2:10pm – 2:25pm F **Comparative effectiveness of cefazolin, piperacillin-tazobactam, and cefepime for MSSA pneumonia** Athena D

Presenters: Logan Brock

TITLE: Comparative effectiveness of cefazolin, piperacillin-tazobactam, and cefepime for MSSA pneumonia

AUTHORS: Logan Brock, Eric Shaw, Amy Taylor

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Broad spectrum antibiotics such as piperacillin-tazobactam or cefepime are frequently used as empiric agents and occasionally continued after pathogen identification due to polymicrobial infections or physician preferences. In bacteremias piperacillin-tazobactam has shown to have worse outcomes when treating methicillin-susceptible Staphylococcus aureus (MSSA) than targeted agents such as cefazolin. This study sought to determine if this concern extends to pneumonia due to MSSA or other broad-spectrum agents such as cefepime.

METHODOLOGY: This study was a single-center retrospective chart review submitted and approved by the local Institutional Review Board. It included adult patients with MSSA-positive respiratory cultures, who were treated with at least 48 hours of either piperacillin-tazobactam, cefepime, or cefazolin after culture and susceptibility results were known. Pregnant patients, incarcerated patients, and patients treated with two or more agents active against MSSA were excluded. The primary outcome was progression of respiratory requirements, defined as a sustained ≥ 12-hour progression to high-flow nasal cannula, non-invasive ventilation, invasive ventilation, or increase in ventilator requirements after 24 hours of definitive therapy. Pre-specified secondary outcomes were all-cause mortality, in-hospital mortality at 14 and 30 days, length of hospital and ICU stay, and 30-day readmission (total and infectious).

RESULTS: Of the 371 patients screened, 86 patients were included in the final analysis. Sixty-two patients were treated with cefazolin, 13 patients were treated with piperacillin-tazobactam, and 14 patients were treated with cefepime. At baseline patients with piperacillin-tazobactam and cefepime were statistically more likely to be treated with antibiotics prior to admission (15% and 21.4%, respectfully) compared to the cefazolin arm (1.6%), but the baseline median Charlson comorbidity index was not statistically different. There was also no difference in the incidence of concomitant infections in any group. There was a statically significant difference in the primary outcome with 5 of 13 patients (38%) in the piperacillin-tazobactam arm developing progression of respiratory requirements compared to 6 of 62 patients (10%) in the cefazolin arm. In the cefepime arm, 4 of 14 patients (29%) had progression of respiratory requirements, and there was no significant difference when compared to either cefazolin or piperacillin-tazobactam. The difference in all-cause mortality was statistically significant, occurring in 46% of patients treated with piperacillin-tazobactam and 18% with cefazolin. Additionally, the thirty-day readmission for infectious cause was also statistically significant and occurred in 3 of 13 patients (23%) treated with piperacillin-tazobactam, 1 of 14 (7%) with cefepime, and 1 of 62 (2%) treated with cefazolin.

CONCLUSIONS: This retrospective study found progression of respiratory requirements, higher rates of all-cause mortality, and increased 30-day infectious readmission in patients treated with piperacillin-tazobactam as definitive treatment of MSSA pneumonia compared to patients treated with cefazolin, and a numerical trend towards all of the above when compared to cefepime. The limitations of this study include its small sample size, retrospective nature, and lack of baseline stratification of treatments for illness severity. Despite this, these findings suggest that piperacillin-tazobactam may be worse than targeted therapy for the treatment of infections due to MSSA.

2:10pm – 2:25pm F **Estimating the Potential Impact of Penicillin Skin Testing in Pregnancy** Athena C

Presenters: John Young

TITLE: Estimating the Potential Impact of Penicillin Skin Testing in Pregnancy

AUTHORS: John Ethan Young, Deanne Tabb, Laura Hagan, Matthew McAllister

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Beta-lactam antibiotics are the preferred agents for the treatment and prevention of many obstetric infections. Reported penicillin allergies oftentimes result in the use of alternative antibiotics which may be less effective and associated with an increased risk of adverse events. Penicillin skin testing (PST) is a tool used to determine if a patient has a true penicillin allergy. PST is recommended by several organizations including the American College of Obstetrics and Gynecology, the American Academy of Pediatrics, and the American Academy of Allergy, Asthma, and Immunology; however, this test is often not routinely performed. The purpose of this study was to determine what proportion of pregnant women reporting a beta-lactam allergy may be eligible for PST. The secondary objective was to assess appropriateness of antibiotics received at the time of delivery based on risk of anaphylaxis. The findings of the study will be used to educate providers on the potential impact of PST in pregnancy.

METHODOLOGY: A retrospective chart review was performed of pregnant women that gave birth at Piedmont Columbus Regional Midtown between June 1, 2022, and June 1, 2023, and reported a beta-lactam allergy. Patients that met these parameters were classified into one of five groups based on the reported reaction and risk of developing anaphylaxis: intolerance, unknown reaction, low risk of anaphylaxis, moderate risk of anaphylaxis, or high risk of anaphylaxis. Patients with an unknown reaction, drug intolerance, or those classified as low-to-moderate risk were considered eligible for PST, while high risk patients were deemed ineligible. Appropriate antibiotic use included beta-lactams for intolerances, cephalosporins for undocumented reactions or low risk of anaphylaxis, and vancomycin, gentamicin, clindamycin, or aztreonam for moderate-to-high risk of anaphylaxis as directed by the type of infection or bacterial culture result, if available.

RESULTS: In process

CONCLUSIONS: In process

2:10pm – 2:25pm T **ASPIRATION RISK OF INTRAVENOUS VS ORAL DIPHENHYDRAMINE IN THE SETTING OF ACUTE SICKLE CELL CRISIS** Athena B

Presenters: Adithya Ghantae

TITLE: ASPIRATION RISK OF INTRAVENOUS VS ORAL DIPHENHYDRAMINE IN THE SETTING OF ACUTE SICKLE CELL CRISIS

AUTHORS: Adithya Ghantae, Lindsey Stever, Kyle Graham

OBJECTIVE: To determine if patients receiving IV diphenhydramine have a greater risk of aspirating than patients receiving oral diphenhydramine

SELF ASSESSMENT QUESTION: •Does use of IV diphenhydramine have a significant impact on aspiration risk in acute pain crisis?

BACKGROUND: The inpatient sickle cell crisis order set at our institution includes options for both oral (PO) and intravenous (IV) diphenhydramine to manage opioid induced pruritus. Anecdotally, the use of IV diphenhydramine concurrently with IV opioids is associated with aspiration. The purpose of this study is to compare rates of aspiration events during admissions for sickle cell crisis in patients receiving PO diphenhydramine with patients receiving IV diphenhydramine to identify potential practice changes that could prevent complications.

METHODOLOGY:Electronic medical record (EMR) reporting software identified inpatient medicine admissions for acute sickle cell crisis that included an order for either IV or PO diphenhydramine. Admissions qualified for the study if the patient was ≥18 years old, admitted to an adult general medicine unit, received at least one dose of PO or IV diphenhydramine and at least one dose of an IV opioid, and had orders for a regular diet. Data collected included home and inpatient opioid doses (MME), number of doses of diphenhydramine given, and identity as well as duration of antibiotics ordered for empiric coverage of aspiration pneumonia.

RESULTS: A total of 8,319 admissions were identified, with 94 admissions with PO diphenhydramine and 144 admissions with IV diphenhydramine included in the final analysis. Included patients had the following characteristics: median age [IQR] (PO: 29.5 [23.3-36] years; IV: 29.5 [23-32.8] years), male gender (PO: 42.5%; IV: 41.6%), all patients identified as African American. Out of the eligible admissions there were 2 (2.1%) in the PO group and 8 (5.5%) in the IV group with a documented aspiration event (RR=1.34, 95% CI: 0.97-1.86). All of the patients who experienced aspiration were exposed to antibiotics, which included cefepime, ceftriaxone, azithromycin, moxifloxacin, and vancomycin. Cumulative dose (mg) and number of doses of diphenhydramine utilized was higher in the IV group compared to the PO group (median [IQR] cumulative dose: 50 mg [25-200 mg] vs. 25 mg [25-68.8 mg], p=0.004; median [IQR] doses used: 2 [1-9] vs. 1 [1-2.8], p<0.0001 in the IV vs PO group, respectively).

CONCLUSIONS: Our study did not find a statistical difference in aspiration risk when using IV or PO diphenhydramine. However, our study was underpowered and the incidence of aspiration was numerically higher in the IV group compared to the PO group. Utilization of IV diphenhydramine was higher than PO which could lead to future analysis on cost differences of IV and PO therapy. Future studies should further evaluate the relationship of aspiration and IV diphenhydramine use in the setting of treatment of opioid induced pruritis in patients experiencing an acute sickle cell crisis.

2:10pm – 2:25pm Y **Adherence and Socioeconomic Disparities in Patients with Metastatic Prostate Cancer** Athena A

Presenters: Jamarius Carvin

TITLE: Adherence and Socioeconomic Disparities in Patients with Metastatic Prostate Cancer

AUTHORS: Jamarius Carvin, Emily Lee, Jennifer LaFollette, Marjorie Adams Curry, Julianna Cebollero

OBJECTIVE: Identify factors affecting adherence to oral anticancer agents in metastatic prostate cancer.

SELF ASSESSMENT QUESTION: Was adherence to oral cancer agents suboptimal despite financial assistance in the study?

BACKGROUND: Prostate cancer is the second leading cause of cancer death in men in the United States. Metastatic hormone-sensitive prostate cancer can be treated with oral anticancer agents (OAAs) including abiraterone and enzalutamide, which can be continued until disease progression. Adherence data in underserved populations are limited. Studies report real-world nonadherence rates from 25-51% among patients with prostate cancer on OAAs. Contributing factors for nonadherence include drug access and cost, adverse effects, age and comorbidities. In addition, socioeconomic disparities and social determinants of health (SDOH) including financial strain may influence adherence. Grady Health System provides care to underserved patients in metro Atlanta. In order to remove financial barriers, all patients have access to cancer treatment through medication assistance programs. The purpose of the study is to assess OAA adherence for metastatic prostate cancer at Grady Health System (GHS).

METHODOLOGY: A single-center, retrospective study of first-line treatment with abiraterone or enzalutamide was conducted in men diagnosed with metastatic prostate cancer from January 2015 to January 2023. Patients must have filled prescriptions at a GHS pharmacy to be included. Patients were excluded if they had less than 6 months of refill history, were diagnosed at an outside institution, and/or were incarcerated. Per the GHS Financial Assistance Program, uninsured patients receive discounted medical care and OAAs are made accessible via Patient Assistance Programs. The Area Deprivation Index (ADI) is defined as a socio-economic deprivation of geographic areas including income, education, employment, and housing quality; higher ADI scores indicate a greater level of deprivation. The primary endpoint of the study was adherence to abiraterone and/or enzalutamide during the first 6 months of treatment. Prescription refill data from the outpatient pharmacy system at GHS was utilized to calculate adherence (drug available greater than or equal to 80% to less than 120% of days evaluated). Secondary endpoints included patients meeting the definition of adherence greater than or equal to 6 months, MPR during months 0 to 6 and 6 to 12, adherence based on social determinants of health, and switching to another OAA. Descriptive statistics were utilized for statistical analysis.

RESULTS: A total of 141 patients met criteria and were included in the study. The mean age was 67 years and 94% of patients were black. The payor breakdown included Medicare (58.2%), Medicaid (24.8%), Uninsured (15.6 %), and Commercial (1.4%). Overall, 64.5% of patients were adherent to first line treatment during the first 6 months, meeting the primary endpoint. During months 6 to 12, 67.2% of patients were considered adherent. The mean MPR was 82% during the first 6 months and 85% for months 6 to 12. ADI scores were low (1-3), medium (4-6), high (7-10), for 29.1%, 28.4%, and 42.5% of patients, respectively. Approximately 50% of patients responded to the SDOH assessment questions; lower rates of adherence were associated with financial strain and alcohol use categories. Other SDOH categories assessed included tobacco use, transportation needs, housing instability, food insecurity, and depression. Twelve patients on enzalutamide switched to abiraterone, while only 1 patient on abiraterone switched to enzalutamide.

CONCLUSIONS: Suboptimal adherence was identified in patients with metastatic prostate cancer treated at GHS despite financial access to the OAAs. Future research regarding SDOH and ADI within the institution may help identify patients that may benefit from interventions aside from financial support to improve treatment adherence.

2:10pm – 2:25pm P **Initiation of Buprenorphine for Uncontrolled Pain in Patients with Untreated Opioid Use Disorder** Athena I

Presenters: Conner Kelly

TITLE: Initiation of Buprenorphine for Uncontrolled Pain in Patients with Untreated Opioid Use Disorder
AUTHORS: Conner Kelly, PharmD, Janine Short, PharmD, Adam Corey, PharmD, BCPS
OBJECTIVE: Evalulate the efficacy of initiation buprenorphine +/- naloxone for the treatment of co-occurring acute, non-surgical pain and opioid use disorder in patients admitted with untreated opioid use disorder
SELF ASSESSMENT QUESTION: True/False: Buprenorphine initiation alleviated severe pain by day 7/day of discharge in 100% of patients in the baseline severe pain cohort
BACKGROUND: Numerous strategies for the management of pain in patients with untreated opioid use disorder (OUD) exist. Outside the utilization of non-opioid analgesics, guidelines such as The ASAM National Practice Guideline for the Treatment of Opioid Use Disorder suggest that the initiation of buprenorphine or methadone be considered for pain management in patients not actively engaged in OUD care. However, little data exists supporting the use of this strategy, especially in patients admitted with moderate to severe pain. Potential clinical concerns exist with the use of this approach in the inpatient setting as well given the acuity of pain patients often present with and due to the pharmacologic properties of methadone and buprenorphine. Because methadone requires 5-7 days to achieve a therapeutic steady state and buprenorphine can precipitate withdrawal, both agents may leave patients with untreated pain during the initial stages of hospitalization. This untreated pain potentially increases the risk of leaving again medical advice (AMA) prior to completing treatment or attempting to use illicit opioids during admission, leading to an 2x increase in all-cause mortality. Although hospitalization has been identified as a key opportunity for initiating buprenorphine in patients with untreated OUD, it is unclear if buprenorphine is best initiated earlier during the admission period or later on when acute medical conditions have been given the chance to stabilize or subside.

METHODOLOGY: At Atrium Health Wake Forest Baptist, patients admitted with untreated OUD and uncontrolled pain are typically evaluated by the acute pain consult service. Often, the acute pain service initiates this patient population on buprenorphine immediately upon or shortly after admission for the management of both conditions. Therefore, the aim of this study is to assess the safety and efficacy of this practice by evaluating measures such as change in daily median peak pain scores and rates of against medical advice discharges in this patient population.

RESULTS: Of the 83 patients evaluated, baseline peak pain scores on the day of buprenorphine initiation were 8 compared to 6 at day 7. Of the 83 total patients, 68 showed severe baseline peak pain scores. Of these 68 patients, median peak pain scores at baseline were 9 compared to 6.5 at day 7. 46% of these patients still reported severe peak pain scores at day 7/day of discharge. 18% of total patients left the hospital AMA. 49% had documented precipitated/uncontrolled withdrawal. 27% had a documented ED visit/hospital admission for opioid overdose or injection-related infection within 30-days of discharge. 7% had documented attempts at illicit drug use while in the hospital.
CONCLUSIONS: Buprenorphine regimens did not alleviate severe pain by day 7/day of discharge for nearly 50% of patients in the baseline severe pain cohort. 49% of patients with documented precipitated/uncontrolled withdrawal shows that buprenorphine is being started too early from last opioid use or at too low of doses to adequately control withdrawal.

2:30pm – 2:45pm C **Pharmacists' LDL Monitoring Initiative in Post Ischemic Stroke Patients in a Rehabilitation Center** Parthenon 2

Presenters: Leena Salam

TITLE: Pharmacists' LDL Monitoring Initiative in Post Ischemic Stroke Patients in a Rehabilitation Center

AUTHORS: Leena Salam, Elisabeth Webb, Raeda Anderson, Chloe Sellers, Lauren Wilcox, Carly B. Warner

OBJECTIVE:
Identify the impact of pharmacist interventions on optimizing outcomes of ischemic stroke patients

SELF ASSESSMENT QUESTION:
Which of the following are interventions pharmacists can make to optimize stroke outcomes?1. Advocating for LDL level monitoring2. Initiating and adjusting statin/ezetimibe therapy3. All of the above

BACKGROUND:
1 in 4 stroke survivors have a recurrent stroke within 5 years. Rehabilitation centers offer comprehensive care to patients recovering from stroke and pharmacists can advocate for guideline-recommended medications in these patients. There is limited research on the pharmacist's role in post stroke care within rehabilitation facilities. This study focuses on a pharmacist-led initiative to optimize low-density lipoprotein (LDL) monitoring in ischemic stroke patients in a rehabilitation center to optimize post stroke care.

METHODOLOGY:
This was a retrospective single centered cohort study of adult patients with ischemic stroke. The study includes 122 patients, divided into pre (n=64) and post-initiative (n=58) groups for comparison. The pharmacist-led initiative was implemented in January 2023 and included obtaining LDL levels in ischemic stroke patients 4-12 weeks from their baseline LDL to optimize lipid lowering medications. The pre-initiative group, admitted January 1, 2022 to September 30, 2022, was compared to the post-initiative group, admitted January 1, 2023 to September 30, 2023. Secondary objectives compare statin dose adjustments (i.e., increase, decrease, initiation, or discontinuation), statin intensity at discharge (i.e., high, moderate, or low), and ezetimibe initiation pre and post initiative. Statin and ezetimibe doses were obtained at admission, 2 weeks post LDL result, and at discharge. Collected data include baseline demographics, medical history indicating higher stroke risk, and stroke and laboratory data. Patients were excluded if they were pregnant, lactating, or had a non-ischemic stroke. Normally distributed data and relationships between variables were examined through correlations, t-tests, and analysis of variance. Non-parametric equivalents for analysis were conducted for data that was not normally distributed.

RESULTS:
There was a strong relationship between follow up LDL levels being completed and phases of initiative integration with patients in the post initiative group having follow up LDL levels drawn 69.0% of the time, compared to only 39.1% for patients pre initiative. (Γ= -0.551, $p<0.001$). Follow up LDL levels were significantly more likely to be collected within 4-12 weeks of stroke in the post-initiative group (80.0%) compared to the pre-initiative group (45.5%) (Γ= -0.516,$p=0.041$). Patients were more likely to have a statin change 2 weeks post LDL after the pharmacist initiative (Γ = 0.571, $p=0.033$), but there were no significant changes for initiation or discontinuation of statins between the two groups. There were no statistically significant differences in level of statin intensity at discharge overall or by baseline LDL score, Patients were significantly more likely to be on a

statin at discharge post initiative (98.3%) compared to pre initiative (87.5%) (Γ = 0.781, p = 0.016). Of those discharged on statins 89.5% were on high-intensity statins post initiative compared to 87.5% pre initiative. Overall, only a few patients (n=5) were on ezetimibe at admission, 2 weeks post LDL follow up, and discharge.

CONCLUSIONS:
A significant increase of ischemic stroke patients had follow up LDL levels collected and were on a statin at discharge in the post pharmacist-led initiative group. This study highlights the potential for pharmacists to play an important role in optimizing post-stroke care in a rehabilitation center.

2:30pm – 2:45pm ' **Pharmacist-led Opioid Stewardship Impact on Hospitalist Opioid Ordering Habits** Athena I

Presenters: Nikolas Jozic

TITLE: Pharmacist-led Opioid Stewardship Impact on Hospitalist Opioid Ordering Habits

AUTHORS: Nikolas Jozic, Eric Marr

OBJECTIVE: Determine if a pharmacist-led opioid stewardship workflow effects opioid ordering patterns.

SELF ASSESSMENT QUESTION: Not applicable

BACKGROUND: Opiate therapy is a useful, evolving tool for patient analgesia, but it requires cautious use due to its potential for misuse and addiction. This balance has been further complicated by the opioid epidemic, which was declared a US public health emergency in 2017, with Kentucky being one of the most severely affected states. A multi-disciplinary approach to reduce opioid use whilst still maintaining proper pain control allows providers to address this challenge. Thomas Jefferson University Hospitals studied altering opioid prescribing in their EHR to align with CDC guidelines, noting decreased refill likelihood due to adequate pain control in the inpatient setting. Locally, a PGY1 resident at Baptist Health Lexington found educating orthopedic surgeons reduced opioid prescribing in 2022. This study aims to look at the effect of inpatient ordering of opiate therapy from physicians at Baptist Health Lexington's Hospitalist group before and after monthly ordering notification of individual average morphine milligram equivalent (MME) ordering per day compared to the group.

METHODOLOGY: The study is an IRB approved; retrospective pre-post analysis of the monthly mean MME ordered by hospitalists. Inclusion criteria consists of opioid analgesia orders from physicians within the Baptist Health Lexington Hospitalist group. Exclusion criteria consists of orders from APRNs and PA-Cs within the Baptist Health Lexington Hospitalist group. Pre-intervention data was collected from 03/2023 – 11/2023 via Qlik. Education was provided to the hospitalist group using the new pharmacist-led standard operating procedure regarding opioid stewardship to signify the start of the post-intervention period. Post-intervention data will be collected from 12/2024 – 3/2023 via Qlik. The primary endpoint of this study is the difference in average MMEs ordered per month before and after the intervention. The average MME will be an aggregate of the entire group as well as individual provider averages that are anonymous for the group to examine. The secondary endpoints include the difference in the average MMEs administered per month, the types of opioids ordered pre- and post-intervention, and a comparison between the average MME ordered and the national recommended guidelines (less than 90 MME/day, caution for greater than 50 MME/day).

RESULTS: 26 hospitalists are included in this study. Preliminary data showed an average MME ordered at baseline for all hospitalists in the study was 40.69 ± 13.8 MME/day, demonstrating that many of the hospitalists currently align with the nationally recommended 50 MME/day maximum dosage. The post-intervention average MME ordered for the hospitalist group was 40.08 ± 14.3 MME/day. Hydrocodone - APAP is the most frequently ordered oral opioid, whereas hydromorphone is the most ordered intravenous opioid for the pre- and post-intervention periods.

CONCLUSIONS: The pharmacy-driven workflow showed no statistically significant difference for the primary and secondary endpoints between the pre- and post-intervention periods. To further assess the effectiveness of the workflow, it would be vital to implement it into other service lines or to focus on specific units.

2:30pm – 2:45pm M **Postpartum depression screening in a perinatal substance use clinic in Western North Carolina** Athena H

Presenters: Abby Bechtol

TITLE: Postpartum depression screening in a perinatal substance use clinic in Western North Carolina

AUTHORS: Abby Bechtol, Brooke Jordan-Brown, Amy Marietta, Olivia Caron

OBJECTIVE: Understand the risk of postpartum depression in patients with perinatal substance use disorder.

SELF ASSESSMENT QUESTION: Describe an appropriate method, patient population, and timeline for PPD screening.

BACKGROUND: Postpartum depression (PPD) is a risk for all pregnant patients following birth, however persons with substance use disorders (SUD) are at an increased risk of PPD, overdose, and suicide. To better support birthing persons with SUD, patients should be screened at 4 to 6 weeks postpartum for depression using the Edinburgh Postnatal Depression Scale (EPDS). The purpose of this study was to determine if patients with SUD are being adequately screened for postpartum depression at a perinatal substance use clinic in Western North Carolina called Project CARA (Care that Advocates Respect/Resilience/Recovery for All).

METHODOLOGY: This study was deemed exempt from requiring IRB approval (#23-1062) as it did not constitute human subjects defined under federal regulations. Project CARA is an interprofessional team composed of physicians, midwives, pharmacists, nurses, medical assistants, care managers, and behavioral health specialists who care for perinatal patients with SUD. The clinic's informational technology team compiled data from the electronic health record for patients with a delivery between the dates June 1st, 2022, and July 31st, 2023. The data included delivery date, mental health diagnoses, substance use diagnoses, medications prescribed for opioid use disorder (buprenorphine, methadone, or naltrexone, if any), postpartum appointments (including cancellations and no shows), type of postpartum visit (in office or telehealth), EPDS and Patient Health Questionnaire-9 (PHQ9) screenings if performed, and pregnancy gravida that was last recorded prior to delivery. Demographic information collected included race, ethnicity, age, insurance, and county of residence. The primary outcome was to investigate the rate and patterns of PPD screening at Project CARA.

RESULTS: A total of 207 Project CARA patients gave birth between June 1st, 2022, and July 31st, 2023. The majority of the patients were white (73.9%, n=151), resided in Buncombe County (73.43%, n=55), and were insured by Medicaid (80.67%, n=167). Twenty-two percent (n=47) of the patients were on medications for opioid use disorder (MOUD). Of the patients that gave birth, thirty-three percent (n=69) returned for a postpartum visit. Patients returned on average 23 days post-delivery and had on average 1 cancellation or no-show before attending the first postpartum visit. Of the 69 patients that had a postpartum visit, fifty-two percent (n=36) were on MOUD, and thirty-four percent (n=24) received an Edinburgh screening. About twenty-four percent (n=50) of all patients who delivered in Project CARA during the study period had a baseline diagnosis of depression, whereas of those patients who received EPDS screening, thirty-three percent (n=8) had depression at baseline. Most patients were screened during the second postpartum visit (54.17%, n=13), with the screening taking place on average 39 days post-delivery. All EPDS screenings occurred during an in-person visit apart from one telehealth visit.

CONCLUSIONS: The current rate of return for postpartum follow up and for screening of postpartum depression at Project CARA is low and has opportunity for improvement. When postpartum depression screening occurred, it was done during in-person visits and on average of 5 to 6 weeks post-delivery. Screening was more likely to be completed for patients who already had a depression diagnosis at baseline. Future interventions to consider include standardizing workflows to better schedule postpartum patients, establish a "walk-in" PPD screening clinic, and identify patients' barriers to accessing care.

2:30pm – 2:45pm M **Reducing Gender Disparities in Statin Therapy Among Veterans with T2DM and/or CVD** Athena G

Presenters: Schylar Hathaway

TITLE: Reducing Gender Disparities in Statin Therapy Among Veterans with T2DM and/or CVD

AUTHORS: Schylar Hathaway, Lindsey Pearsall, Paul Hansen, Nathaniel Swanson, Marci Swanson, Deborah Hobbs

OBJECTIVE: Females are less likely to receive statin therapy resulting in a gender disparity

SELF ASSESSMENT QUESTION: Are females less likely to receive statin therapy than males?

BACKGROUND: Cardiovascular disease (CVD) remains to be the leading cause of death in women in the U.S. The use of statins is the cornerstone of lipid-lowering therapy and cardiovascular risk reduction for prevention of ASCVD. Research predominately shows females are less likely to receive statin therapy. The purpose of this project is to reduce gender disparities for female Veterans with T2DMs and CVD regarding the use of statin therapy.

METHODOLOGY: This performance improvement project was approved by the P&T Committee. The primary objective is to improve equity of cardiovascular risk reduction by increasing the percentage of female Veterans with type II diabetes and/or CVD prescribed statin therapy. The secondary objective is to assess interest in pharmacogenomic testing among participants and evaluate the results and outcomes on statin therapy. A virtual dashboard known as the Primary Care Equity Dashboard (PCED) will be utilized to identify the gender disparities in statin utilization. This dashboard was created using electronic quality measure (eQM) data and provides VISN (Veterans Integrated Services Network) and facility level performance via a disparity matrix. A Clinical Pharmacist Practitioner (CPP) will identify Veterans using the following inclusion criteria: female, type II diabetes present, CVD, or both and no active statin prescription. The CPP will exclude those known with statin contraindications, defined statin intolerance, and/or type I diabetes. The Veterans' charts via CPRS, Computerized Patient Record System, will be reviewed to initiate an appropriate statin for ASCVD risk reduction per the 2018 ACC/AHA and 2023 ADA guidelines and pharmacogenomic testing, when appropriate. An increase in statin utilization is anticipated for female Veterans and increasing the eQM data.

RESULTS: TBD

CONCLUSIONS: TBD

2:30pm – 2:45pm R **Hydrocortisone in septic shock due to pneumonia versus other source of infection** Olympia 2

Presenters: Zoanne Harlas

TITLE: Hydrocortisone in septic shock due to pneumonia versus other source of infection

AUTHORS: Zoanne Harlas, Isabelle Perling, Jocelyn Bullard, Rachael Clark, Susan Smith, John Carr

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Guidelines recommend the use of hydrocortisone in patients with septic shock refractory to high dose vasopressors. The benefit of hydrocortisone in septic shock has varied between studies, with some investigators observing mortality benefit, and others not. Data has indicated that such a benefit exists in patients with severe community acquired pneumonia, and recent guidelines acknowledge this indication. No study in septic shock has investigated the benefit of steroids by source of infection. The objective of this study was to determine a difference in in-hospital mortality in septic shock patients treated with hydrocortisone between patients with pneumonia and other infection source.

METHODOLOGY: This retrospective, observational, chart review investigated in-hospital mortality, time to vasopressor discontinuation, and hospital and ICU length of stay among patients requiring vasopressors who received hydrocortisone for septic shock due to pneumonia versus non-pneumonia source. A computer-generated report identified patients who received norepinephrine and greater than or equal to 200 mg/day of hydrocortisone from June 1, 2021 to August 31, 2023. Adult patients with sepsis or septic shock diagnosis codes who received norepinephrine infusion concurrently with greater than or equal to 200 mg/day of hydrocortisone in addition to broad spectrum antibiotics were included. Patients were excluded if they were pregnant, died within 24 hours of starting hydrocortisone, or were receiving greater than or equal to 15 mg/day of prednisone or equivalent corticosteroid dose prior to initiation of hydrocortisone. The primary outcome was percent in-hospital mortality or transition to comfort measures or hospice in patients treated with hydrocortisone for septic shock due to pneumonia versus other source of infection. A chi-squared test was used to evaluate this outcome. Secondary outcomes included median time to vasopressor discontinuation, hospital, and ICU length of stay which were compared using a Mann Whiney-U test. A p-value of less than 0.05 was used to determine statistical significance.

RESULTS: There were 445 patients who received norepinephrine and greater than or equal to 200 mg/day of hydrocortisone from June 1, 2021 to August 31, 2023. Of those, 316 were excluded; death within 24 hours of initiation of hydrocortisone was the most common reason for exclusion. 129 patients were included for analysis, 43 in the pneumonia group and 86 in the non-pneumonia group. Baseline demographics were similar between the two groups. Intraabdominal, urinary, and skin and soft tissue infections were the most common sources of sepsis or septic shock in the non-pneumonia group. In-hospital mortality or transition to comfort measures or hospice occurred in 46% of patients in the non-pneumonia group versus 29% in the pneumonia group (p-value 0.130). Median time to vasopressor discontinuation from initiation of hydrocortisone was 41 hours in the non-pneumonia group versus 40 hours in the pneumonia group (p-value 0.297). Median hospital length of stay was 14 days in the non-pneumonia group versus 19 days in the pneumonia group (p-value 0.113). Median ICU length of stay was 8 days in the non-pneumonia group versus 11 days in the pneumonia group (p-value 0.137).

CONCLUSIONS: No statistically significant differences were observed in septic shock patients treated with hydrocortisone between pneumonia and non-pneumonia source. Numerically, mortality was higher in the non-pneumonia group while ICU and hospital length of stay were longer for the pneumonia group with a negligible difference in time to vasopressor discontinuation from initiation of hydrocortisone between the two groups. Ultimately, there was no observed difference in the effect of hydrocortisone in the treatment of septic shock

patients between pneumonia and non-pneumonia source. However, more data in a larger, prospective population is needed to further investigate this potential difference.

2:30pm – 2:45pm R **Impact of an Alcohol Withdrawal Protocol Update in the Medical Intensive Care Unit** Parthenon 1

Presenters: Jimmy Wyland

TITLE: Impact of an Alcohol Withdrawal Protocol Update in the Medical Intensive Care Unit
AUTHORS: Jimmy Wyland, Shelby Wise, Mike Maccia, Grace Barr
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Alcohol withdrawal syndrome (AWS) is a life-threatening medical condition commonly seen amongst patients with alcohol use disorder. The standard of care for AWS utilizes the Clinical Institute Withdrawal Assessment of Alcohol scale (CIWA-Ar) for symptom assessment with benzodiazepines (BZDs) being mainstay of treatment. BZDs increase the frequency of opening of GABA channels and are fully effective when GABA is available at the receptor site. Patients with chronic alcohol use have low levels of GABA which can lead to an inadequate response to BZD therapy, resulting in seizures and delirium tremens (DTs). Phenobarbital has been studied in AWS, that works as a GABA agonist while acting as an antagonist at glutamate receptors. Phenobarbital has a longer half-life and a more robust effect on GABA over BZDs, leading to a new potential treatment option in AWS. This study evaluates the use of phenobarbital for alcohol withdrawal management in medical intensive care unit (ICU) patients.
METHODOLOGY: This is a single center, retrospective pre and post study with Institutional Review Board approval. Patients were identified between April 2022 to January 2023 for pre-intervention and between February 2023 to January 2024 for post-intervention. The Moses H. Cone Memorial Hospital (MCH) nursing staff screened patients by using the alcohol use disorder identification test-concise (AUDIT-C) followed by the prediction of alcohol withdrawal severity scale (PAWSS) to identify which patients would be consulted for pharmacy to dose phenobarbital protocol. The protocol included fixed tapered dosing for active DTs, high risk, or low risk patients plus as needed lorazepam for agitation. Patients were included if admitted to the MCH medical ICUs, older than 18 years of age, and utilized the ICU alcohol withdrawal order set or ordered phenobarbital per order panel. Additional data collected includes ICU length of stay, use of phenobarbital, dexmedetomidine, ketamine, haloperidol, cumulative dose of benzodiazepines, use of restraints, and need for intubation. To meet study power, 60 patients were included in the pre and post study groups. Statistical analysis included Wilcoxon rank sum for the primary outcome, chi-square test for categorical secondary outcomes, and student’s t-test for cumulative amount of BZDs.
RESULTS: This pre/post study included 120 patients, 60 in the pre-intervention group and 60 in the post-intervention group. The majority of the patients were male in both groups, with average age about 54 years old, and similar rates of previous history of alcohol withdrawal and sequelae. Patients who received phenobarbital had a shorter length of stay in the ICU (mean (SD) 4.38 (4.07) vs 3.04 (3.39) p-value equal to 0.0125), while secondary outcomes, including cumulative benzodiazepine dosage reported as lorazepam equivalents, were comparable between groups with a trend of less use of dexmedetomidine in the post-intervention group.
CONCLUSIONS: A phenobarbital protocol for the treatment of AWS is an effective option versus the standard of care BZDs in the medical ICU.

2:30pm – 2:45pm R **Optimizing Pharmacist Team-Integration for ICU Patient Management (OPTIM)** Olympia 1

Presenters: Brandon Smith

TITLE: Optimizing Pharmacist Team-Integration for ICU Patient Management (OPTIM)
AUTHORS: Brandon Smith, PharmD, Cortney Dodson, PharmD, BCCCP, Jenna Cox, PharmD, BCPS, BCCCP
OBJECTIVE: Describe the relationship between ICU pharmacist to unit ratio and patient outcomes
SELF ASSESSMENT QUESTION:
BACKGROUND: There is currently no standardization related to optimal intensive care unit (ICU) pharmacist coverage models related to patient outcomes. As a result, there may be wide variability in the number of patients and units that ICU pharmacists are responsible for. Pharmacists have become a regular part of the interdisciplinary team, with objective data demonstrating increased healthcare cost avoidance. As an ICU census or number of units covered increases, it is relatively unknown if this would hinder the pharmacist's ability to provide the same level of care. Currently, there are several studies examining patient outcomes regarding intensivist or physician to patient ratio. Up to this point, however, there has not been any objective data examining patient outcomes related to ICU pharmacist-to-patient or pharmacist-to-unit ratio. This study aims to assess if increased ICU pharmacist unit coverage results in worse patient outcomes.
METHODOLOGY: This is a single part of a larger multi-center, observational cohort study. Patients admitted to an ICU at Prisma Health Richland between August 7th, 2023 and November 15th, 2023, for which the pharmacist covering the medical or cardiopulmonary ICU during first day of admission, were included. Data collection occurred in two phases: a prospective phase, where pharmacist-to-patient and pharmacist-to-unit ratios were collected, and a retrospective phase examining patient outcomes. Data collected consisted of hospital/ICU length of stay, mortality, duration of mechanical ventilation, SOFA score at 24 hours from ICU admission, and MRC-ICU score. The primary outcome is ICU length of stay for patients seen by an ICU pharmacist covering one unit versus more than one unit during the first day of admission. Secondary outcomes include days of mechanical ventilation, and duration of hospital and ICU length of stay.
RESULTS: TBD
CONCLUSIONS: TBD

2:30pm – 2:45pm F **Characterizing Empiric Use of Anti-Pseudomonal Beta-Lactams in a Community-Teaching Hospital** Athena D

Presenters: Cameron Crawford

TITLE: Characterizing Empiric Use of Anti-Pseudomonal Beta-Lactams in a Community-Teaching Hospital

AUTHORS: Cameron Crawford, Dan Gillis

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The rate of multidrug-resistant (MDR) Enterobacteriaceae and P. aeruginosa from the community, long-term care, and hospital settings are of growing concern for healthcare providers due to their association with worse clinical outcomes. Concomitantly, the overuse of broad-spectrum antibiotics is a leading cause of antimicrobial resistance, so proper use of these agents is critical to retain susceptibility. The aim of this study is to characterize prescribing of anti-Pseudomonal beta-lactams for empiric coverage of community acquired infections.

METHODOLOGY: This is a single-center retrospective chart review analyzing patients who received either cefepime, piperacillin-tazobactam, or meropenem as empiric therapy from September 1, 2021 to August 30, 2023. To be eligible, patients had to be at least 19 years old, receive the agent of interest within 24 hours of admission for a duration of at least 24 hours, have a community acquired infection (defined as infection diagnosed within 48 hours of admission), and have a blood culture or culture collected from suspected source of infection within 120 hours of admission. Patients were excluded if transferred from long-term acute care hospital or outside hospital with admission more than 48H hours prior to transfer, MDR-Gram negative bacteria (organism resistant to 3 or more classes of antibiotics) isolated from any source within 90 days, pregnant, or incarcerated. The primary endpoint was incidence of appropriate anti-Pseudomonal beta-lactam therapy. Key secondary endpoints included individual risk factors for MDR organisms, resistance development prior to discharge, and in-hospital mortality.

RESULTS: TBD

CONCLUSIONS:

2:30pm – 2:45pm F **Impact of national guidelines on local management of potential AmpC-producing infections** Athena C

Presenters: Alexander Aubin

TITLE: Impact of national guidelines on local management of potential AmpC-producing infections

AUTHORS: Alexander Aubin, Ben Albrecht, Sarah Green

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: In the wake of antimicrobial resistance, preservation of antibiotic effectiveness has become vital. AmpC β-lactamases are cephalosporinases encoded within many Enterobacteriaceae and other bacteria. Beta-lactam exposure is associated with clinically significant AmpC β-lactamase induction in select organisms, leading to development of cephalosporin resistance during treatment. Overexpression confers resistance to broad-spectrum cephalosporins (ceftazidime and ceftriaxone) and is a problem in infections due to some Enterobacter spp, where an isolate initially susceptible to these agents may become resistant upon therapy. Despite carbapenem use being associated with increased resistance and negative patient outcomes, they are often utilized for treatment of potential AmpC-producing infections with concern for inducible resistance. In 2023, the Infectious Diseases Society of America (IDSA) identified three organisms as high-risk for meaningful AmpC production: C. freundii, K. aerogenes, E. cloacae. They importantly identified other medium- and low-risk organisms for which non-carbapenem beta-lactams are empirically appropriate. Local systemwide management guidance was enacted via interprofessional meetings, departmental education, and addition to the institution stewardship application. The objective of this analysis was to assess the implementation impact of this AmpC guidance on local antibiotic utilization at Emory University Hospital (EUH) focusing on these organisms.

METHODOLOGY: This retrospective, single-center, pre-post analysis was approved by the Institutional Review Board to assess antimicrobial utilization in adult patients with at least one blood culture positive for a potential AmpC-producing organism (Citrobacter freundii, Citrobacter koseri, Enterobacter cloacae, Klebsiella aerogenes, Morganella morganii, Providencia species, Proteus species, Serratia marcescens). Time frame analyzed was between December 1, 2020 and July 31, 2023. Included patients must have received at least 72 hours of definitive therapy with an antibacterial agent to which the organism is susceptible. The primary outcome was the change in overall carbapenem utilization before and after local guidance implementation for selected potential AmpC-producing organisms (as mentioned previously), measured in days of therapy (DOT) per 1000 patient days (PDs). Secondary outcomes included individual changes in carbapenem, cefepime, and alternative beta-lactam utilization, and changes in utilization amongst patients that were classified as immunocompromised and/or critically-ill. Outcomes were derived through collected information of initial and directed antimicrobial therapy (defined as agent prescription immediately following blood culture draw and based on organism susceptibilities, respectively). Comorbidities, length of stay, readmissions, and C. difficile rates were also evaluated clinical outcomes.

RESULTS: Overall carbapenem utilization treating pre-specified AmpC-producing organisms was 322 DOT/1000 PDs before local implementation versus 268 DOT/1000 PDs after (P = 0.013). Overall incidence of carbapenem use decreased from 61% pre-guidance to 44% post-guidance (P = 0.001) and cefepime use increased from 9% to 25% (P = 0.006). Specific to each organism, there was no statistically significant difference in either carbapenem or cefepime utilization, though a numeric decrease in carbapenem use was observed in all but K. aerogenes and Proteus spp. Immunocompromised patients were 2.45 times more likely to be prescribed a carbapenem (P = 0.008), and critically-ill patients were 1.56 times more likely to be prescribed a carbapenem, though this finding was not statistically significant (P = 0.153).

CONCLUSIONS: After local guidance implementation, there was a decrease in carbapenem utilization in treating bacteremia associated with potential AmpC-producing organisms, yet an increase in cefepime utilization. With a

focus on EUH’s immunocompromised patient population, there was a 43% decrease in carbapenem utilization between periods. This showcased that local implementation still impacted antimicrobial prescribing, despite well-published evidence that select cephalosporins and penicillins have a role in treating many AmpC-producing organisms. Evidently, stewardship programs may benefit from interpolation of national recommendations and systemwide education regarding evolving areas of practice.

2:30pm – 2:45pm T **Evaluation of Safety Outcomes in Patients on Low Dose Rivaroxaban Plus Chemical VTE Prophylaxis Versus Monotherapy with Low Dose Rivaroxaban** Athena B

Presenters: Mark Suddreth

TITLE: Evaluation of Safety Outcomes in Patients on Rivaroxaban 2.5 mg

AUTHORS: Mark Suddreth, Stefanie Sarratt, Tim Amsion

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Following the COMPASS trial (2019), rivaroxaban was FDA approved for peripheral arterial disease (PAD) and coronary artery disease (CAD) at the dose of 2.5 mg twice daily. The findings from COMPASS were confirmed in the VOYAGER-PAD trial (2023), showing low-dose rivaroxaban (when added to low-dose aspirin) was associated with a lower risk of ASCVD events among patients with symptomatic lower extremity PAD. Consequently, an increasing number of patients are being admitted to Spartanburg Medical Center that have been prescribed this regimen prior to admission. There is currently no published data regarding the use of this lower dose for venous thromboembolism (VTE) prophylaxis. As a result, when patients are admitted on low-dose rivaroxaban, practitioners are unsure if this regimen is adequate for VTE prophylaxis. Both dosing strategies of rivaroxaban 2.5 mg twice daily alone and rivaroxaban 2.5 mg twice daily plus traditional chemical VTE prophylaxis have been used. Given the lack of data, questions remain regarding the safety and the efficacy of these two regimens. The purpose of this study is to evaluate safety outcomes with these dosing strategies.

METHODOLOGY: This was a single-center, retrospective analysis of patients admitted to the inpatient medical ward who were ≥ 18 years of age and received VTE prophylaxis with either rivaroxaban 2.5 mg twice daily alone or rivaroxaban 2.5 mg twice daily plus traditional chemical VTE prophylaxis from September 1st, 2020, to July 31st, 2023. For the purpose of this study, traditional VTE prophylaxis was defined as heparin 5,000 units every 8-12 hours, enoxaparin 40 mg once daily (or appropriately dose adjusted for renal function or BMI), enoxaparin 30 mg every 12 hours (or appropriately dose adjusted for renal function or BMI), or fondaparinux 2.5 mg once daily. The primary outcome was clinically relevant bleeding (bleeding leading to a transfusion of ≥ 2 units of packed red blood cells or whole blood, bleeding at a critical site, or bleeding leading to death) requiring intervention or discontinuation of the anticoagulant(s). The secondary outcome was occurrence of VTE (pulmonary embolism or deep vein thrombosis) during hospital admission.

RESULTS: A total of 140 electronic health records of patients that received one of these two regimens were reviewed. Of these 140 patients that received one of these two regimens, 131 received rivaroxaban 2.5 mg monotherapy for VTE prophylaxis, and nine patients received the combination of rivaroxaban and traditional VTE prophylaxis. The primary outcome of clinically relevant bleeding occurred in one (0.8%) patient in the rivaroxaban monotherapy group and 0 patients in the combination group. The secondary outcome did not occur in either group.

CONCLUSIONS: Among patients admitted to Spartanburg Medical Center from September 1st, 2020, to July 31st, 2023, that received rivaroxaban 2.5 mg twice daily for VTE prophylaxis, 0.8% experienced clinically relevant bleeding. Among this same patient group, there was no occurrence of VTE during hospital admission. Neither the primary nor secondary outcome occurred in the combination group, however the number of patients in this cohort was too small to draw significant clinical inferences. These results suggest that low-dose rivaroxaban may be safe and efficacious in preventing VTE during hospital admission. However, a prospective, randomized trial is still needed to confirm these results.

2:30pm – 2:45pm P **Impact of a Pharmacist-Driven Opioid Stewardship Program at a Community Hospital** Athena J

Presenters: Cricket Patterson

TITLE: Impact of a Pharmacist-Driven Opioid Stewardship Program at a Community Hospital
AUTHORS: Cricket Patterson, Pharm.D., Megan Whittier, Pharm.D., BCPS
OBJECTIVE: List the potential benefits of an opioid stewardship program
SELF ASSESSMENT QUESTION:
BACKGROUND: This study evaluated the impact of pharmacist-driven opioid stewardship program by analyzing change in doses of ALTO medications and opioids prior to the initiation of the program to after initiation. Cost savings generated through pharmacist interventions were also reported to demonstrate monetary benefit of the program.

METHODOLOGY: Retrospective non-patient specific data was collected from December 1st, 2019 to September 30th, 2022 for primary and secondary outcomes. Doses of alternatives to opioids (acetaminophen, ibuprofen, ketorolac, naproxen, gabapentin, and pregabalin) and doses of IV hydromorphone, IV morphine, transdermal fentanyl, oxycodone, and hydrocodone were collected for analysis. Exclusions were orders from physicians that specialize in hospice, orders from anesthesiologists, and patient controlled analgesia (PCA) doses. Opioid doses are reported in morphine milligram equivalents (MMEs) and ALTO medication doses are reported in milligrams. Doses were normalized to per 1000 patient days per month in order to adjust for differences in census. An unpaired t-test was performed for each of the medications and a p-value of 0.05 was set for statistical significance. Pharmacy interventions from the same time period were totaled and multiplied by the cost-savings (in dollars) associated with each intervention type.
Results: For the primary outcome, none of the opioid MME changes reached statistical significance. For the ALTO medications, the change in milligrams was statistically significant for acetaminophen, gabapentin, and pregabalin. For the secondary outcome, the savings for 2,004 opioid stewardship interventions totalled $204,378 over 24 months and 2 weeks.
Conclusions: There was no statistical change in MMEs for any opioid. Pain management consults take first priority over opioid stewardship activities. This often requires the OSP pharmacist on duty to spend the majority of their shift completing these consults, which results in little time for OSP activities. The high utilization of acetaminophen is due to population comorbidities and pharmacist recommendations. Gabapentin and pregabalin are frequently utilized for neuropathic pain management, with gabapentin being the most commonly recommended. The savings calculated by OSP pharmacist interventions demonstrates the return on investment of resources for the service. Additionally, even though some intervention subtypes were not associated with a savings value, these activities have a positive impact on patient care. The authors acknowledge the limitations of this study which are reliance on nursing staff to document dose administration amount, pharmacist time constraints, EHR availability, and inability to separate gabapentin doses administered as part of the alcohol withdrawal order set. Future directions for the OSP service are refining ALTO and opioid options on standardized order sets with the goal of optimizing pain regimens in alignment with current recommendations.

2:50pm – 3:05pm T **Evaluation of Initial Insulin Infusion Multipliers in Renal Failure Patients** Athena B

Presenters: Sabah Hassan

TITLE: Evaluation of Initial Insulin Infusion Multipliers in Renal Failure Patients

AUTHORS: Sabah Hassan

OBJECTIVE: Identify clinical gaps with insulin infusion dosing in renal failure patients. Describe the findings and recommendations as a result of this study.

SELF ASSESSMENT QUESTION: True or False: The mean time to target blood glucose was similar between both study groups.\

BACKGROUND: Wellstar Health System uses a Food and Drug Administration (FDA) approved computerized algorithm to support intravenous (IV) insulin dosing through integration with the electronic medical record (EMR). The “multiplier” is the insulin sensitivity factor that determines the insulin dose. A recent upgrade to the organization’s insulin infusion order set included the addition of an optional initial multiplier of 0.01 for use in renally impaired and insulin sensitive patients. The purpose of this project was to evaluate the safety and efficacy of the implemented 0.01 initial multiplier in patients with renal failure.

METHODOLOGY: The study was a multi-center prospective quality improvement project with a pre/post design conducted in 9 hospitals across the system. Participants included in the study were hospitalized patients with chronic kidney disease and hyperglycemia who were treated with a continuous insulin infusion prescribed by the physician. During the pre-study period, from June 11, 2023, to October 10, 2023, only an initial multiplier of 0.02 was available for selection in the insulin infusion order set. The post-study period, October 11, 2023, to February 11, 2024, included both the 0.02 and 0.01 multipliers. The primary endpoints were time to target blood glucose, number of hypoglycemic and severe hypoglycemic events. The secondary endpoints were duration of IV insulin therapy, hospital length of stay (LOS), intensive care unit (ICU) LOS, time to resolution of metabolic acidosis in patients with diabetic ketoacidosis (DKA), and overall use of 0.01 initial multiplier. This study was submitted to the institutional review board but granted exemption status.

RESULTS: Fifty patients were included in the pre-study group. Two patients were included in the post-study group due to only 0.9% of insulin infusions prescribed using the 0.01 initial multiplier. Statistical analysis between the study groups was not conducted due to an insufficient number of patients in the post-study group. The mean time to target blood glucose was similar between the groups (6:31 hours, 6:23 hours). There were 10 hypoglycemic events in the pre-study group with 7 of those events being severe hypoglycemia (blood glucose <54 mg/dL). There were no hypoglycemic events in the post-study group. The mean duration of insulin therapy was 46 hours in the pre-study group and 17 hours in the post-study group. The mean length of hospital stay was 11 days in the pre-study group and 10 days in the post-study group. The mean ICU length of stay was 9 days versus 4 days in the pre and post study groups. The time to resolution of metabolic acidosis in patients with DKA was 19 hours in the pre-study group and 23 hours in the post-study group. There was a 0.9 % use of the renal multiplier in eligible patients.

CONCLUSIONS: There was an inadequate number of patients in the post study group to show statistical difference. The reason for this could be based on lack of awareness that the optional multiplier was embedded in

the order set or provider preference. Additional research with a larger sample would be needed to determine the safety and efficacy outcomes.

2:50pm – 3:05pm ' **Reducing the Copay of Branded Diabetes Drugs Effect on Adherence in a Medicare Population** Athena I

Presenters: Brittny Nutt

TITLE: Reducing the Copay of Branded Diabetes Drugs Effect on Adherence in a Medicare Population
AUTHORS: Brittny Nutt, Emily Tong, David Mostellar
OBJECTIVE: Discuss the effect of branded diabetes drug copay reduction on adherence in a Medicare population.
SELF ASSESSMENT QUESTION: How does CMS calculate the proportion of days covered for all class diabetes adherence?
BACKGROUND: The Centers for Medicare and Medicaid Services (CMS) estimates that 27.5% of Medicare beneficiaries had a diagnosis of diabetes in 2019. Diabetes management a concern for payers due to its high management cost and poor health outcomes. A 2006 study found that patients who had less than 80% percentage of days covered (PDC) had a higher all-cause hospitalization and all-cause mortality compared to patients with drug adherence with PDC ≥80%. The Pharmacy Quality Alliance recognized the clinical impact of diabetes adherence and founded the CMS all-class diabetes adherence measure, which is calculated by the number of days covered by any diabetes drug over the total days within the time period. Since then, the clinical landscape has shifted towards newer branded diabetes agent use, including classes that improve cardiovascular and renal outcomes, and have better safety compared to older diabetes treatments. The high cost of branded drugs could cause an adherence barrier for diabetic members. In 2023, Centene changed the formulary tier of branded diabetes drugs included in the CMS measure for two national prescription drug plans (PDPs). The re-tiering from Preferred Brand Tier to Select Diabetic Drug Tier decreased the member's copay from $47 per month in 2022 to $11 per month in 2023. This study aims to determine the effect of reducing the copay for members who require branded diabetic products on their branded diabetes drug adherence.
METHODOLOGY: This is a retrospective regression analysis comparing changes in member adherence from 2022 to 2023. The study included members enrolled in two plans with a tier change, WellCare Medicare Rx Value Plus (PDP), WellCare Value Script (PDP), and one without a change in tier, WellCare Classic (PDP), who had at least two claims for a targeted brand diabetes drug. Members were stratified based on number of prescriptions, age, sex, state, date of first fill of targeted drug, PDC of 2022, drug class, and number of days in coverage gap. Adherence to the target drugs was measured using PDC with a score greater than or equal to 80% considered adherent.
RESULTS: TBD
CONCLUSIONS: TBD

2:50pm – 3:05pm M **Pharmacist vs MSA Outreach for Scheduling Appts to Reduce Disparities in Diabetic Women on Statins** Athena G

Presenters: Elizabeth Hatch

TITLE: Comparing Pharmacist vs Medical Support Assistant Outreach for Scheduling Clinical Pharmacist Practitioner Appointments to Reduce Gender Disparities in Diabetic Women on Statins

AUTHORS: Elizabeth Hatch, Katrina White, Tiffany Jagel, Shari Brown, Hayley McCarron

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The integration of pharmacists into primary care within the VA has demonstrated benefit by decreasing provider workload and improving access to care. Pharmacists were originally tasked to schedule their own patient appointments but Medical Support Assistance (MSA) support can now be utilized. However, there is debate on the more effective method. The purpose of this project is to compare success rates for MSA outreach versus pharmacists offering Veterans appointments with their patient aligned care team clinical pharmacy practitioner (PACT CPP) focusing on reducing gender disparities in women with diabetes on statins.

METHODOLOGY: A primary care Equity Dashboard is available within the Veterans Health Administration. This dashboard identifies diabetic Veterans who meet guideline criteria for statin initiation. This data will be collected and imported into a spreadsheet on October 2023. From this date to March 2024, the Veterans listed on this spreadsheet will be contacted via phone call to discuss scheduling an appointment with a CPP for potential statin initiation. Patients identified as having contraindications to statin therapy and/or already seeing a CPP will be excluded from the project. Project participants are aiming to offer 200 CPP appointments for potential statin therapy initiation in diabetic female Veterans by March 2024. A script will be utilized by the pharmacist for calling Veterans. A return to clinic order will be placed by the pharmacist for MSA to call veterans. If the Veteran is agreeable to an appointment with the CPP, a return to clinic order will be placed to have the patient scheduled into the patient aligned care team CPP clinic. Time spent by pharmacist on phone calls, placing the return to clinic order, outcome of call and whether appointment is scheduled will be documented. Upon data collection, these outcomes will be evaluated. A comparison of success rate and time spent of pharmacist versus MSA personnel contacting patients and the number of patients agreeable to the CPP visits will be performed.

RESULTS: 64 appointments scheduled by MAS. 21 appointments scheduled by CPP. In total 85 appointments with CPP scheduled out of 144 available = 59% of pts agreeable to CPP appt for CV risk reduction and potential statin initiation. Overall time spent placing RTCs for MSA to schedule appointment ~3.8 hours versus time spent by CPP to review chart and contact patient ~19.9 hours. Overall female absolute difference from the national average improved from 7.0% in FY2023 Q3 to now 4.2% in FY2024 Q2.

CONCLUSIONS: Most effective use of time would be for MSA to call patient to schedule appointment and CPP perform chart review prior to appointment.

2:50pm – 3:05pm C **Time to transition from intravenous to oral bumetanide vs furosemide in heart failure patients** Parthenon 2

Presenters: Anna Cargill

TITLE: Time to transition from intravenous to oral bumetanide vs furosemide in heart failure patients

AUTHORS: Anna Cargill, Emily Johnson, Kayla Pangburn

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure recommends that patients with heart failure (HF) admitted with evidence of significant fluid overload should be promptly treated with intravenous (IV) loop diuretics to improve symptoms and reduce morbidity. Loop diuretics are often initiated at a dose at least two times the patient's home dose per the DOSE trial, which concluded that high-dose furosemide resulted in greater net fluid loss, weight loss, and relief from dyspnea. While the benefit of loop diuretics in HF maintenance and during exacerbation is well-established, few studies have directly compared the effectiveness of different loop diuretics, especially bumetanide compared to furosemide. The purpose of this project is to compare the effectiveness of bumetanide and furosemide.

METHODOLOGY: Adult patients hospitalized at Cape Fear Valley Medical Center, who received IV loop diuretics for an indication of heart failure exacerbation were retrospectively reviewed in this single-center cohort study. The primary endpoint was the time (in hours) to transition from IV to oral in patients receiving bumetanide compared to furosemide. Time to transition was defined as time (in hours) from receipt of first dose of IV loop diuretic to time of receipt of first dose of oral diuretic.

RESULTS: TBD

CONCLUSIONS: TBD

2:50pm – 3:05pm R **A comparison of safety, efficacy, and usage between Crotalidae Immune F[ab']2 [equine] (Anavip®) and Crotalidae polyvalent immune Fab [ovine] (CroFab®) for envenomation** Parthenon 1

Presenters: Gabrielle Cromley

TITLE: A comparison of safety, efficacy, and usage between Crotalidae Immune F[ab']2 [equine] (Anavip®) and Crotalidae polyvalent immune Fab [ovine] (CroFab®) for envenomation

AUTHORS: Authors: Gabrielle Cromley, Joseph Morris III, Eric Shaw, Jenifer Csan

OBJECTIVE: To compare the rate of anaphylactic and non-anaphylactic allergic reactions between CroFab® and Anavip®

SELF ASSESSMENT QUESTION: Which antivenin was shown to have decreased incidence of late coagulopathy in its Phase III clinical trial?

BACKGROUND: Crotalidae are venomous snakes including rattlesnakes, copperheads, and cottonmouth snakes which are commonly found in the Southeastern United States. Crotalidae polyvalent immune Fab [ovine] (CroFab®) and Crotalidae immune F[ab']2 [equine] (Anavip®) are antivenins used for Crotalid envenomation. They are immunoglobulins that facilitate elimination of toxins through an antigen-antibody reaction. The recommended initial dosing for CroFab® 4-6 vials which may be repeated for initial control followed by maintenance dosing of 2 vials every six hours for three doses. For Anavip®, the recommended initial dose is 10 vials which may be repeated for initial control. Maintenance dosing is not necessary with Anavip® given its extended half-life of 5.5 days. When compared in clinical trials, Anavip® has been shown to have less late coagulopathy which is a marker of efficacy for antivenin. This effect is believed to be a result of its extended half-life.

METHODOLOGY: This retrospective cohort study included adults and children who received a dose of either CroFab® or Anavip® between August 2018 and August 2023. Patients were excluded if they were pregnant, previously received antivenin at an outside facility, or if the antivenin product was changed due to inventory. The primary outcome was incidence of anaphylactic or non-anaphylactic allergic reaction. Secondary outcomes investigated were late coagulopathy, need for systemic corticosteroids, time to order and cost of both antivenins. Incidence of anaphylaxis was defined as administration of epinephrine within 24 hours of the antivenin dose and non-anaphylactic allergic reaction was defined as the use of an antihistamine within 24 hours of antivenin. Late coagulopathy was defined as platelets < 150,000 Plt/µL, fibrinogen < 150 g/L, or antivenin used for coagulation abnormality within 5 days of initial dose. Time to order was the time from admission to order placement. Data collection and analysis was performed by individual chart review.

RESULTS: A total of 90 patients were screened and 31 patients were excluded. The majority of excluded patients received antivenin at an outside facility. There were 36 patients included in the CroFab® group and 23 patients included in the Anavip® group. For the primary outcome, there were 11 (31%) instances of non-anaphylactic reaction with CroFab® compared to 6 (26%) instances with Anavip® and 1 (4%) anaphylactic reaction in the Anavip® group (p = 0.70). Late coagulopathy occurred in 6 (16.7%) patients who received CroFab® compared to 2 (8.6%) patients who received Anavip® (p = 0.30). Systemic corticosteroids were used in 1 (2.8%) patient in the CroFab® group and 3 (13%) patients in the Anavip® group. The median time to order placement was 51 minutes in the CroFab® group and 40 minutes in the Anavip® group (p = 0.20).

CONCLUSIONS: There was a numerically lower incidence of non-anaphylactic allergic reactions with Anavip® compared to CroFab®. There was one incidence of anaphylaxis with Anavip® captured in our study. Anavip® also had a numerically lower incidence of late coagulopathy as seen in clinical trials. There was a considerable and statistically significant cost savings for patients treated with Anavip®.

2:50pm – 3:05pm R **Hyperglycemia Occurrence in Enterally Fed Ischemic Stroke Patients** Olympia 2

Presenters: Heather Wallhauser

TITLE: Hyperglycemia Occurrence in Enterally Fed Ischemic Stroke Patients

AUTHORS: Heather Wallhauser, Leslie Hamilton, A. Shaun Rowe, Skyler Brown, Olivia Bray, Hayden Caldwell

OBJECTIVE: To evaluate the safety and efficacy of sliding scale variations in AIS patients receiving EN

SELF ASSESSMENT QUESTION: What mechanism is thought to contribute to hyperglycemia after an acute ischemic stroke?

BACKGROUND: Hyperglycemia following an acute ischemic stroke (AIS) has been linked to increased morbidity and mortality. In the intensive care unit (ICU), insulin is the primary treatment to mitigate these effects. This study aimed to evaluate the efficacy and safety of administering half-dose sliding scale insulin at midnight compared to full doses in AIS patients receiving enteral nutrition.

METHODOLOGY: This single-center, retrospective cohort study involved 151 patients diagnosed with acute ischemic stroke and receiving enteral nutrition in a neurocritical care unit between January 1, 2014, and December 31, 2021. Patients were divided into two groups based on the dosage of sliding scale insulin at midnight: full dose (FULL) and half dose (HALF). The primary outcome was the incidence of hyperglycemia observed over a 48-hour period after stable on enteral nutrition. Secondary outcomes included new infections, incidence of hypoglycemia, and incidence of delirium.

RESULTS: In the FULL group, 52 patients (71.2%) experienced hyperglycemia compared to 60 patients (76.9%) in the HALF group (risk difference 5.69% [95% CI: ,8.30% to 19.68%]; p=0.0019), meeting statistical significance for non-inferiority. Delirium was significantly higher in the FULL group (32 [43.8%] vs. 10 [12.8%], p,0.001), while the HALF group had a higher rate of suspected bacterial infections (32 [52.1%] vs. 54 [69.2%], p=0.0306). There were no significant differences in hypoglycemia.

CONCLUSIONS: The study indicates that administering half-dose sliding scale insulin at midnight in acute ischemic stroke patients receiving enteral nutrition is non-inferior to full doses in controlling hyperglycemia. However, differences in infection rates suggest that hyperglycemia may influence other clinical outcomes. Well controlled blood glucose impacted delirium without a clear explanation.

2:50pm – 3:05pm R **Pseudoephedrine or Midodrine for the Treatment of Neurogenic Shock** Olympia 1

Presenters: William Pitts

TITLE: Pseudoephedrine vs Midodrine for the Treatment of Neurogenic Shock

AUTHORS: William Pitts, PharmD; Seth Garner, PharmD, BCCCP; Kristin Rebo, PharmD, BCCCP

OBJECTIVE: Describe common oral agents used to wean patients off IV vasopressors in the setting of cervial spinal cord injury and neurogenic shock.

SELF ASSESSMENT QUESTION: What oral agents can be used in the setting of cervical spinal cord injury and neurogenic shock with a goal to liberate from IV vasopressor?

BACKGROUND: Neurogenic shock, a consequence of cervical and high thoracic spinal cord injuries, often results in a loss of sympathetic tone with preserved parasympathetic function. This state of autonomic instability appears clinically as hypotension and bradycardia. Initial treatment includes fluids and intravenous (IV) vasopressors therapy, with a mean arterial pressure (MAP) greater than 85 mmHg for the first 72 hours after insult. After this period, a MAP goal greater than 65 mmHg is challenging due to primary and secondary injuries persisting as hypotension and bradycardia. Oral agents are often required to decrease reliance of IV vasopressors and atropine. Current practice guidelines and literature lack congruence of optimal oral agent selection in neurogenic shock. Patients are often started on midodrine or pseudoephedrine to maintain MAP greater than 65 mmHg. Previous studies have demonstrated a decrease in IV vasopressor duration of therapy and ICU length of stay after initiation of an oral vasopressor.

METHODOLOGY: A retrospective, single center chart review of patients with ICD-10 codes for cervical spinal cord injury and shock, defined as inability to maintain MAP ≥ 65 mmHg without IV vasopressor support 72 hours after admission, from September 2013 to September 2023. Patients were divided into two groups, those who received pseudoephedrine or midodrine. Patients included in the study were greater than 18 years of age and admitted to the Trauma ICU service with oral vasopressor use of midodrine or pseudoephedrine.

RESULTS: A total of 35 patients were included in the primary analysis. The patients treated with midodrine had a median age of 55 years compared to 32 years for those treated with pseudoephedrine, majority of both treatment groups were male 68% vs 86%. While not statically significant, patients treated with pseudoephedrine were on IV vasopressors for 29 hours compared to 46 hours, p=0.39. ICU length of stay was on average 13 days for patients treated with pseudoephedrine compared to 16 for those treated with midodrine, p=0.28, hospital length of stay was on average 40 days for pseudoephedrine compared to 28 days, p=0.77. Most patients 64.3% and 85.7% for pseudoephedrine were prescribed an oral agent at discharge, p=<0.001.

CONCLUSIONS: Patients who suffer a cervical spinal cord injury may require oral agents, midodrine or pseudoephedrine, to maintain a MAP ≥ 65. Pseudoephedrine has favorable pharmacodynamic properties for patients with bradycardia and hypotension. Further evaluation of institutional practices may provide additional insight into selection of pseudoephedrine or midodrine.

2:50pm – 3:05pm F **Diagnostic Stewardship Intervention to Reduce Unnecessary Treatment of Asymptomatic Bacteriuria** Athena D

Presenters: Colby Osborne

TITLE: Diagnostic Stewardship Intervention to Reduce Unnecessary Treatment of Asymptomatic Bacteriuria

AUTHORS: Colby J. Osborne, Hans Scheerenberger, Angela Kaucher

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Misdiagnosis of asymptomatic bacteriuria as a urinary tract infection may lead to inappropriate antibiotic use. Infectious Diseases Society of America recommends against screening for and treating asymptomatic bacteriuria because antibiotic use does not improve clinical outcomes and is associated with significant risk. It has been reported in literature that as much as 60-80% of inpatient urinalyses ordered are potentially unnecessary. An outpatient medication use evaluation performed at James H. Quillen VA Medical Center showed that 40% of patients with a positive urine culture had asymptomatic bacteriuria, and 83% of those patients were treated with potentially unnecessary antibiotic therapy. The goal of this project is to minimize unnecessary antimicrobial prescribing for asymptomatic bacteriuria across practice areas through a urinalysis and urine culture ordering menu with electronic clinical decision support.

METHODOLOGY: A review of best practice literature on appropriate management of urinary tract infections and asymptomatic bacteriuria was conducted. A diagnostic stewardship intervention was developed with a focus on indication-based urinalysis and urine culture ordering via a menu integrated into the electronic health record. This urinalysis and urine culture ordering menu was implemented to improve ordering processes and provide clinical decision support for the diagnostic management of urinary tract infections and asymptomatic bacteriuria. Verbal and written education was disseminated to all inpatient and outpatient services upon implementation. The primary endpoint to be evaluated is the proportion of outpatient antibiotics prescribed for urinary tract infection. The secondary endpoints for this project include the relative percentage of antibiotics prescribed for asymptomatic bacteriuria, number of urinalyses ordered, and number of urine cultures ordered. Pre- and post-intervention data is to be collected and reviewed.

RESULTS: TBD

CONCLUSIONS: TBD

2:50pm – 3:05pm F **TDM-Guided Linezolid Dosing for Serious Gram-Positive Infections Requiring Extended Duration** Athena C

Presenters: Abbie Blunier

TITLE: TDM-Guided Linezolid Dosing for Serious Gram-Positive Infections Requiring Extended Duration

AUTHORS: Abbie L. Blunier, P. Brandon Bookstaver, Julie Ann Justo, Caroline Derrick, Y. Vivian Tsai

OBJECTIVE: Review the effectiveness of TDM-guided dosing to reduce thrombocytopenia in long-term linezolid use

SELF ASSESSMENT QUESTION: Did the use of TDM-guided dosing reduce thrombocytopenia in extended courses of linezolid?

BACKGROUND: Linezolid, an antimicrobial with high oral bioavailability and extensive tissue distribution, use may often be limited to abbreviated treatment durations due to increased risk of adverse effects associated with protracted courses. Predicting toxicity is complicated by the varied interpatient exposure from the standard dosage of oral linezolid 600 mg twice daily. Emerging evidence suggests a potential role for therapeutic drug monitoring (TDM) of linezolid to minimize the risk of toxicity. This study evaluates the impact and outcomes of a linezolid TDM program implemented to guide dosing in patients receiving linezolid for extended treatment durations.

METHODOLOGY: This is a prospective, observational, open-label, pilot study of patients receiving care from infectious diseases providers in the Midlands. Participants will be included if they are ≥18 years old with a presumed or confirmed serious gram-positive bacterial infections prescribed at least 3 weeks of total therapy per clinician's determination and initiated on linezolid 600 mg oral tablet by mouth twice daily with a planned duration of at least 14 days. Linezolid serum trough concentrations will be measured on twice for patients in the TDM group. The goal trough is 2.0-8.0 mcg/mL and doses will be adjusted based per protocol. The primary outcome is the comparative mean platelet counts during linezolid therapy between TDM and non-TDM groups. Secondary outcomes include proportion of participants with non-therapeutic linezolid steady state serum trough concentrations (thus requiring dosage changes), proportion of participants with clinical failure through 30 days from the end of linezolid therapy, assessment of risk factors for nontherapeutic linezolid steady state trough concentrations, and overall incidence of each linezolid-associated adverse event (i.e. thrombocytopenia, anemia, leukopenia, lactic acidosis, neuropathy, and serotonin syndrome). Univariable linear regression will be utilized to evaluate the impact of TDM vs. no TDM on platelet count of patients while on linezolid therapy and multivariable linear regression will then be used to adjust for potential confounders.

RESULTS: In progress

CONCLUSIONS: In progress

2:50pm – 3:05pm L **Evaluation of P2Y12 reaction units on bleeding in post-neurointerventional patients** Athena A

Presenters: Alexandria Howell

TITLE: Evaluation of P2Y12 reaction units on bleeding in post-neurointerventional patients

AUTHORS: Alexandria Howell, Reed Henderson, Rachele Hollis, Olivia Morgan

OBJECTIVE: Describe the relationship between PRU values and bleeding events in neurointerventional patients

SELF ASSESSMENT QUESTION: Identify the DAPT combination that appeared to correlate with current literature regarding PRU values and post-neurointerventional bleeding events

a.Ticagrelor + ASA b. Clopidogrel + ASA c. Prasugrel + ASA

BACKGROUND: Dual antiplatelet therapy (DAPT) is the standard of care to prevent thrombosis in patients undergoing various neurointerventional procedures. The most common DAPT regimen is aspirin plus a P2Y12 inhibitor (P2Y12i), such as clopidogrel or ticagrelor. Platelet responsiveness to P2Y12i can be assessed in real-time with a point-of-care test measuring P2Y12 reaction unit (PRU) activity. A higher PRU value denotes high on treatment platelet reactivity (HTPR) and is more likely to aggregate leading to increased risk of thromboembolic events as there is less response to the P2Y12i. According to current literature, a PRU level greater than 208 correlates to higher risk of thromboembolic complications. Conversely, there is limited guidance regarding low PRU values, or those with low on treatment platelet reactivity (LTPR) and its correlation to postoperative bleeding.

METHODOLOGY: A single-centered retrospective chart review was conducted from January 2021 to July 2023. Inclusion criteria were neurointerventional patients aged 18 years and older who received at least one dose of DAPT before procedure with a pre-procedural PRU documented in the electronic medical record. Exclusion criteria included patients on triple therapy (DAPT and therapeutic anticoagulation), DAPT indication not related to neurointerventional procedures, and protected populations (prisoners, pregnant). The primary outcome was to ascertain the median PRU values associated with bleeding events stratified by early (less than 48 hours) and late bleeding (greater than 48 hours to 30 days from the procedure). Further stratification consisted of characterizing bleeding events as per the International Society on Thrombosis and Haemostasis standards for major and minor bleeding.

RESULTS: During the study period, 69 patients met inclusion criteria, with 29% of patients positive for bleeding events post-procedure. The median PRU of bleeding events for the entire cohort was 59 [interquartile range (IQR) 29-90]; whereas the median PRU for absence of bleeding events was 45 (IQR 7-104). Early bleeding events occurred in 20% of patients with a median PRU of 71 (IQR 13-84), and 8% of patients had late bleeding episodes with a median PRU of 48 (IQR 47-116). For individuals on clopidogrel-containing DAPT, the median PRU associated with bleeding events was 79 (IQR 38-112) compared with 104 (IQR 87-123) those with absence of bleeding events.

CONCLUSIONS: In this study, a lower PRU did not appear to correlate with post-neurointerventional bleeding events. Pre-procedural PRU monitoring may not be warranted for neurointerventional procedures given the lack of correlation between PRU values and bleeding events, but additional prospective research is needed.

2:50pm – 3:05pm E **Management of Well-Appearing Febrile Infants at a Large Community Hospital** Athena H

Presenters: Addison Watkins

TITLE: Management of Well-Appearing Febrile Infants at a Large Community Hospital

AUTHORS: Addison Watkins, Christina Crawley, Patrick Newman, Melanie Whitmore

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Febrile neonates whose clinical appearance does not readily suggest a serious infectious process can rapidly decline if not treated promptly. This rapid decline in clinical appearance was first recognized with group B Streptococcus (GBS) infections in the 1970s. Over the past five decades, efforts to develop prediction models for patients at risk of serious bacterial illness have sparked debate over the evaluation and management of this patient population. The management of well-appearing febrile infants has evolved in the setting of new evidence to suggest changing bacteriology in this age group, the costs associated with unnecessary care, and technological advancements. The American Academy of Pediatrics (AAP) released clinical practice guidelines in 2021 to address recent developments in care for this population, to standardize care, and to reduce healthcare-associated costs. The purpose of this study was to determine the adherence across a large community healthcare system to these recommendations.

METHODOLOGY: A single-center, retrospective chart review was conducted between March 2023 and September 2023 to evaluate the management of patients age 8 to 60 days old presenting to the pediatric emergency department with fever. Patients were excluded if they met the following criteria: received an immunization in the 48 hours prior to admission, any previous neonatal surgery or infection, high suspicion for HSV, focal bacterial infection, bronchiolitis, suspected immunocompromise, congenital or chromosomal abnormalities, born prematurely, or less than two weeks of age and the mother’s perinatal course was complicated by fever, infection, or antimicrobial use. Data analyzed includes patient demographics, labs and cultures collected, antimicrobial regimen, fluids administered, time to finalization of HSV tests, and length of stay.

RESULTS: A total of 74 patients were screened for eligibility and 31 patients were included. Patients were then divided into three age groups as defined by the AAP guidelines. All patients had blood cultures drawn, urinalysis collected, and appropriate antibiotic regimens selected. All patients in the 8-21 day age group also had lumbar punctures performed and CSF studies collected as well as HSV studies. Patients in the 22-28 day age group and 29-60 day age group did not all have CSF and HSV studies collected. However, in these age groups performing a lumbar puncture is at the physician's discretion. Antibiotics were not administered within the desired one hour from presentation time frame that our institution aims for. A longer length of stay was observed in patients who had HSV studies collected and acyclovir initiated.

CONCLUSIONS: In this retrospective chart review, the management of well appearing febrile infants age 8-60 days old at a large community hospital was reviewed. All patients had the recommended labs collected including inflammatory markers, blood cultures, and urinalysis. Patients in the 8-21 day age group all had CSF and HSV studies performed as recommended by the AAP guidelines. Antibiotic administration was delayed amongst all age groups which appeared to be related to the need for a lumbar puncture to be performed prior to administration. There was a longer length of stay in patients who had HSV studies performed which could be due HSV testing being sent out to another facility. Future directions include comparing the cost of increased length of stay to performing HSV testing on site. Collaboration with emergency department physicians is ongoing to discuss ways to improve the delays in antibiotic administration.

3:10pm – 3:25pm M **Utilizing Health Equity Dashboard to Improve Statin Prescribing in Women Veterans with Diabetes** Athena G

Presenters: Amanda Forrest

TITLE: Utilizing Health Equity Dashboard to Improve Statin Prescribing in Women Veterans with Diabetes
AUTHORS: Amanda Forrest, Elizabeth Hamilton, Natalie Kurtkaya, Cristina Plemmons
OBJECTIVE: Define health equity and its impact on patient care
SELF ASSESSMENT QUESTION:
BACKGROUND: The VA Primary Care Equity Dashboard was created to help VA medical centers identify opportunities for improvement in the realm of health equity/disparities.
The Health Equity Dashboard identifies disparities in patients based on the following demographics: race/ethnicity, sex/gender, neighborhood poverty level and rurality. Health Equity is now Joint Commission Leadership Standard, thus emphasizing the importance of this project and its potential outcomes.
The goal of this project is to identify whether a pharmacist can decrease health disparities for the female veteran population. We sought to determine if a pharmacist could improve guideline directed statin prescribing in women veterans with diabetes mellitus in Veterans Integrated Service Network (VISN) 7, Charleston SC Health Care System, thus decreasing the health disparities by improving quality of care.
Potential barriers to this intervention include patient's resistance to statin therapy and the inability to reach some veterans. We hope to combat resistance to statin therapy by offering pharmacogenomic testing to patients who have failed statin therapies in the past and identify patient specific options based on the results.
Pharmacogenomic testing for statins can help to identify specific mutations linked with altered metabolism and identify patients with a predisposition to statin adverse reactions. We can thus provide guideline directed, patient specific therapies, by identifying these mutations.
METHODOLOGY: This project is a health equity focused quality improvement project. Eligible patients included female veterans with a diagnosis of diabetes, ages 40-75 as identified by the Veterans Affair's Primary Care Health Equity Dashboard. All patients were identified as lacking current statin therapy. Patients were contacted and described the benefits and need for statin therapy given diabetes diagnosis and offered to start statin therapy. Follow up with primary care provider and or pharmacist was offered. Patients with multiple adverse drug reactions to statin therapy were offered pharmacogenomic testing to aid in future medication management.
RESULTS: TBD
CONCLUSIONS: TBD

3:10pm – 3:25pm C **Retrospective Evaluation of 4F-PCC versus Andexanet-alfa for DOAC Reversal** Parthenon 2

Presenters: Carolyn Coulter

Retrospective Evaluation of 4-Factor Prothrombin Complex Concentrate versus Andexanet alfa for Direct Oral Anticoagulant Reversal

Authors: Carolyn Coulter PharmD; Carissa Dolan PharmD, BCPS; Brandon Beers PharmD, BCCP

Practice Site: Cone Health – Alamance Regional Medical Center – Burlington, NC

Objective: Evaluate the safety and efficacy of 4F-PCC versus andexanet alfa for the reversal of DOAC-associated bleeding

Background: Direct oral anticoagulant (DOAC) use has increased given evidence of superiority or noninferiority to warfarin for thromboembolic conditions. Guideline recommendations for DOAC reversal agent selection are inconsistent, and the Cone Health formulary includes both 4-factor prothrombin complex concentrate (4F-PCC) and andexanet alfa. Investigation of DOAC reversal strategies is ongoing given the lack of head-to-head studies comparing the two strategies. This study evaluated the safety and efficacy of 4F-PCC versus andexanet alfa for the reversal of apixaban or rivaroxaban associated bleeding.

Methods: This was a single health system, multisite, retrospective, IRB-approved study that included patients 18 years or older who received either 4F-PCC or andexanet alfa for apixaban or rivaroxaban reversal at a Cone Health facility from January 1, 2019, to October 31, 2023. Patients were excluded if their last dose of DOAC was >24 hours before reversal, no major bleeding event occurred, reversal was for emergent surgery, bleed was deemed to be non-survivable, or reversal was given outside Cone Health. The primary outcome was achievement of good or excellent hemostasis adapted from Milling Jr. et al. in ANNEXA-4. Good hemostasis was defined as >10% to ≤20% decrease in hemoglobin (Hgb) and hematocrit (Hct) at 12-24 hours for GIB and >20% to ≤35% increase in hematoma volume or thickness on repeat CT within 6-12 hours for ICH and SDH. Excellent hemostasis was defined as ≤10% decrease in Hgb and Hct at 12-24 hours for GIB and ≤20% increase in hematoma volume or thickness on repeat CT within 6-12 hours for ICH and SDH. Secondary outcomes included diagnosis-to-needle time, thrombosis at 7 and 30 days, time since last DOAC dose, and in-hospital mortality A total of 148 patients were needed to achieve 80% power and α of 0.05. Chi-squared and t-test with 95% confidence intervals were used to compare categorical and numerical outcomes, respectively.

Results: Of the 637 patients screened, 178 were included in the final analysis. Patients with a GIB at presentation more often received 4F-PCC than andexanet alfa (81% vs. 37%, P<0.001), and patients with ICH or SDH more often received andexanet alfa than 4F-PCC (63% vs. 19%, P<0.001). No difference was observed in achievement of good or excellent hemostasis (91% vs. 91%, P>0.999). Excellent hemostasis was achieved in 83% of patients that received 4F-PCC and 75% of patients that received andexanet alfa. Diagnosis-to-needle time was 3.5 ± 2.9 hours in the 4F-PCC group and 2.9 ± 2.6 hours in the andexanet alfa group (P=0.067). 4F-PCC was administered 11.9 ± 8.3 hours after the last recorded dose of a DOAC, and andexanet alfa was administered 9.8 ± 6.4 hours after the last recorded dose of a DOAC (P=0.203). In-hospital mortality was 8% in the 4F-PCC group and 18% in the andexanet alfa group (P=0.044). There was 1 VTE event in each group within 7 days of administering 4F-PCC or andexanet alfa (P>0.999) and 1 VTE event in the andexanet alfa group within 30 days of reversal (P>0.999).

Conclusions: We found that administration of 4F-PCC or andexanet alfa for reversal in the setting of acute bleed achieved similar rates of good or excellent hemostasis. Given the retrospective nature of this study, there were some imbalances between the cohorts. There was a significant difference in the choice of reversal agent based on type of bleed at presentation. This may underpin the difference in rates of survival and diagnosis-to-needle time among the two agents. Rates of thrombosis at 7 and 30 days were similar among the two groups, however, we observed 2 additional VTE events after at 9 and 41 days after reversal in the andexanet alfa group.

This difference may be related to decreased rates of DOAC resumption in the andexanet alfa group compared to the 4F-PCC group (26% vs. 35%, P=0.055).

Self-assessment Question: Is reversal of DOACs with andexanet alfa superior to reversal with 4F-PCC in the setting of acute, life-threatening bleed?

Reference: Milling TJ Jr, et al. Final Study Report of Andexanet Alfa for Major Bleeding with Factor Xa Inhibitors. Circulation. 2023;147(13):1026-1038. doi:10.1161/CIRCULATIONAHA.121.057844

3:10pm – 3:25pm ' **Evaluation of a Pharmacist-Led Education Service on HCAHPS Scores** Athena I

Presenters: Lakedra White

TITLE: Evaluation of a Pharmacist-Led Education Service on HCAHPS Scores

AUTHORS: Lakedra White, Maura Hall, Andrea Jarzyniecki

OBJECTIVE: Determine the impact of a pharmacist driven education service on HCAHPS scores

SELF ASSESSMENT QUESTION:

BACKGROUND: The Hospital Consumer Assessment of Healthcare Providers and System (HCAHPS) survey measures patient satisfaction and identifies quality gaps in healthcare services. HCAHPS scores are important to hospital performance-based reimbursement and are highly visible to senior leadership. While the data on pharmacy student impact on HCAHPS scores is conflicting, there is limited data evaluating the impact of a pharmacist-led education service on HCAHPS scores within the “communication of medications” domain. In contrast to prior studies, this study focused on a pharmacy-driven service conducted solely by licensed pharmacists. The purpose of this study was to determine whether the implementation of a pharmacist-driven education service improves HCAHPS scores within the “communication of medication” domain among patients admitted to an inpatient medical ward.

METHODOLOGY: This study was a prospective, quasi-experimental, quality improvement study conducted at John D. Archbold Memorial Hospital. This study evaluated a pharmacist-driven patient education program on a select unit. Patients were included if they were at least 18 years of age and directly admitted to the inpatient ward. Patients were excluded if they were non-English speaking, terminally ill, cognitively impaired or if they transferred to another unit within 72 hours of admission. New medications were identified by comparing the patient’s active medication list to the patient’s home medication reconciliation and medication history from prior visits within our institution. A licensed pharmacist provided medication education within seventy-two hours of admission to the medical ward. Medication education included information regarding the indication, common side effects and proper administration of the drug. The primary outcome measure for this study was change in HCAHPS “communication of medications” domain scores for the target unit pre and post intervention. Domain scores after implementation were compared to domain scores from the quarter prior to implementation. Secondary outcomes for this study included change in overall HCAHPS scores for the target unit pre and post intervention and comparison of “communication of medications” domain scores for target unit post intervention to other units in the hospital. Descriptive statistics were utilized for analysis of all outcomes.

RESULTS: A total of 115 patients were captured and educated in the study. Median age was 67 years old. 56% of patients were female. The average HCAHPS “communication about medications” domain score during the pre - intervention period was 57.9%. The average HCAHPS “communication about medications” domain score during the post - intervention period was 46%. The average overall HCAHPS score during the pre - intervention period was 74.9%. The average overall HCAHPS score during the post - intervention period was 48.1%. The average HCAHPS “communication about medications” domain score in the comparator unit was 22% during the post - intervention period. The average HCAHPS "communication about medications" domain score in the target unit was 46.1% during the post - intervention period.

CONCLUSIONS: The HCAHPS “communication about medicine” domain score decreased in the target unit after implementation. After the implementation of a pharmacist – driven education service, the HCAHPS “communication about medicine” domain score progressively increased in the target unit.

3:10pm – 3:25pm C **Impact of Pharmacists on Heart Failure Medication Optimization in a Rural Cardiology Clinic** Parthenon 1

Presenters: Christine Hunter

TITLE: Impact of Pharmacists on Heart Failure Medication Optimization in a Rural Cardiology Clinic

AUTHORS: Christine Hunter, Samantha Salas

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Heart failure is responsible for over one million hospitalizations in the United States annually, with an estimated cost of more than $40 billion per Diamond and colleagues. One in four patients hospitalized for heart failure will be readmitted within 30 days. Guideline-directed medical therapy (GDMT) has been proven to reduce mortality and hospitalizations, however, its complexity can be cumbersome for heart failure patients to manage. Heart failure clinics represent a unique opportunity for pharmacists to assist with medication management, assess adherence, identify barriers to care, and monitor for adverse medication events.

METHODOLOGY: A retrospective study was conducted at Baptist Health Deaconess Madisonville Cardiology Clinic. Inclusion criteria consisted of patients 18 years of age or older with a diagnosis of heart failure who were not on guideline-directed recommended therapy. Chart review was conducted to identify patients for inclusion. Once identified, medication reconciliation and adherence checks were conducted on patients to guide recommendations to meet GDMT. The primary endpoint was the number of recommendations to add or titrate to GDMT recommendations. Secondary endpoints include the number of patients identified not on GDMT by medication class, and other optimizations of patients' medication regimen.

RESULTS: All 79 patients were determined to not be optimized on GDMT. 89 recommendations were made to providers to add GDMT medications or titrate to goal doses. 51 recommendations resulted in a change in medication therapy. 74 patients were not up-to-date on CDC recommended vaccinations, whereas 223 vaccinations were clinically indicated. Drug-disease interactions were identified in 21 patients, and drug- drug interactions were identified in 9 patients.

CONCLUSIONS: Embedding pharmacists within a heart failure clinic resulted in recommendations that further optimized patients' GDMT and increased patient and provider satisfaction. Pharmacists played an integral role in appropriately titrating GDMT, identifying clinically significant drug-drug/drug-disease interactions, monitoring adherence, and promoting indicated CDC recommended vaccinations.

3:10pm – 3:25pm R **Evaluation of Nicardipine vs. Clevidipine in Non-Traumatic Intracerebral Hemorrhage Patients** Olympia 2

Presenters: Monica Whitman

TITLE: Evaluation of Nicardipine vs. Clevidipine in Non-Traumatic Intracerebral Hemorrhage Patients

AUTHORS: Monica Whitman, Christina Metrejean, Haley Smith, Morgan Weithman

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: An intracerebral hemorrhage (ICH) is a specific type of stroke in which a cerebral blood vessel in the brain is damaged and bleeding occurs. In the majority of these non-traumatic ICH patients, hypertension is common and is most likely the primary cause of the hemorrhage. If not controlled, it can lead to expansion of the hematoma. Intravenous (IV) agents with a short time to peak and a short half life are the ideal medication to control hypertension in the acute setting. Two dihydropyridine calcium channel blockers (CCBs), nicardipine and clevidipine, meet these requirements and are commonly used to control acute hypertensive episodes. One difference between these agents is that they are titratable every 5 minutes and 90 seconds, respectively. This study aims to determine if clevidipine, a more rapid acting agent, resulted in a faster time to goal systolic blood pressure (SBP) of less than 140 mmHg when compared to nicardipine in this patient population.

METHODOLOGY: A retrospective chart review was performed to identify patients admitted from 11/1/2019 to 11/1/2023 with a non-traumatic hemorrhage, verified by a computed tomography (CT) scan of the head, and placed on either nicardipine or clevidipine. Patients were separated into a nicardipine or clevidipine group and evaluated with a predetermined 3:1 ratio, due to fewer anticipated clevidipine patients. After identifying 33 total clevidipine patients, nicardipine patients were randomized and the first 109 who met inclusion criteria were identified. Patients were excluded if they were less than 18 years old, pregnant, on both study agents simultaneously, presented with a systolic blood pressure (SBP) less than 140 mmHg, or had a traumatic hemorrhage. The primary endpoint was to determine the time from initiation of study medication to two consecutive SBP less than 140 mmHg readings. Secondary endpoints included hypotensive events (defined as SBP less than 90 mmHg) while on either medication, intensive care unit (ICU) length of stay, ICU mortality, documented expansion of hematoma, and the need for additional antihypertensive medications.

RESULTS: A total of 145 patients were included in this IRB-approved study, including 36 in the clevidipine and 109 in the nicardipine group. The average time to goal SBP of less than 140 mmHg was 189 minutes for the clevidipine group, and 130 minutes for the nicardipine group. The average SBP prior to initiation of medication was 170 mmHg and 176 mmHg for clevidipine and nicardipine, respectively. The median time to goal SBP in nicardipine and clevidpine group was 87 minutes and 121 minutes, respectively. The average ICU length of stay was 5 days for the clevidipine, and 4 days for the nicardipine group. Additional hypertension medications prior to reaching goal were used in 15 (14%) of the clevidipine patients and 10 (28%) of the nicardipine patients. Hematoma expansion occured in 8 (7.3%) of nicardipine and 1 (3%) of clevidipine patients, and hypotensive events occured in 6 (5.5%) nicardipine and 5 (13.9%) clevidipine patients.

CONCLUSIONS: No statistically significant difference was found between outcomes, including time to goal SBP, hematoma expansion, ICU length of stay, hypotensive events, or need for additional anti-hypertensive medications to reach goal.

3:10pm – 3:25pm R **The Difference in Urine Output Between Loop Diuretics plus either Dapagliflozin or Acetazolamide?** Olympia 1

Presenters: Shelby Wathen

TITLE: The Difference in Urine Output Between Loop Diuretics plus either Dapagliflozin or Acetazolamide?

AUTHORS: Shelby Wathen, John Carr, Joseph Crosby, Halle Tukes, Allyn Wardlow

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Fluid overload is a frequent concern with critically ill patients in the intensive care unit (ICU), and has been associated with severe adverse outcomes. Studies have shown that patients with acute kidney injury (AKI) and fluid accumulation during hospitalization have a higher mortality rate. Loop diuretics remain a common therapy option for patients in need of diuresis, but other drug classes may be added on for additional diuresis. The purpose of this study is to determine if there is a difference in urine output between loop diuretics plus either dapagliflozin or acetazolamide in critically ill patients with fluid overload.

METHODOLOGY: This was a retrospective, observational analysis that included critically ill adult patients (18 years old or older) with fluid overload who are treated with at least 3 days of loop diuretics plus either dapagliflozin or acetazolamide within the SJ/C health system from January 6, 2020 to January 6, 2024. Patients were excluded if they were less than 18 years old, pregnant or breastfeeding, had a baseline GFR less than 25 mL/min, received any type of renal replacement therapy before dual diuretics, or if they received both acetazolamide and dapagliflozin on the same day. Baseline demographic data, urine output, weight, past medical history, renal function, total length of dual diuretic use, total loop diuretic dose, length of hospital stay (LOS), length of ICU stay, mechanical ventilation status, and mortality were collected for each patient. The primary outcome was to determine if there is a difference in urine output (mL/day) for the first 3 days of dual diuretic therapy. Secondary outcomes were to determine percent change in weight for the first 3 days of dual diuretic therapy, all-cause mortality during the index hospitalization, LOS (defined by days of admission), and ICU LOS (defined by days of ICU admission.)

RESULTS: A total of 27 patients were included in this study, 18 in the acetazolamide group and 9 in the dapagliflozin group. Average urine output over 3 days was 3,970 mL/day in the acetazolamide group, and 3,293 mL/day in the dapagliflozin group (P = 0.395). Average weight loss over 3 days was 3.3 kg with acetazolamide and 3.2 kg with dapagliflozin, which corresponds to a percent change in weight of 0.034% in the acetazolamide group and 0.035% in the dapagliflozin group (P = 0.765). The all-cause mortality rate was 33% in the acetazolamide group and 11% in the dapagliflozin group. (P = 0.334) Average LOS was 30.5 days and 16.9 days in the acetazolamide group and dapagliflozin group, respectively (P = 0.03) and average ICU LOS was 24.8 days and 16.1 days in the acetazolamide group and dapagliflozin group, respectively (P = 0.097).

CONCLUSIONS: There was not a statistically significant difference in urine output between acetazolamide and dapagliflozin with concomitant loop diuretics. There was also no statistically significant difference in all secondary outcomes except for average LOS, favoring dapagliflozin. More data in a larger, prospective trial is needed to determine if there is a true difference in hospital LOS between these two drugs.

3:10pm – 3:25pm F **Evaluation of Inhaled Ceftazidime in People with Cystic Fibrosis** Athena B

Presenters: Ruchi Shah

TITLE: Evaluation of Inhaled Ceftazidime in People with Cystic Fibrosis

AUTHORS: Ruchi Shah, Gabby Do, Katherine Fuller, Tayler Jackson, William Hunt

OBJECTIVE: Evaluate the tolerability and use of inhaled ceftazidime therapy in PwCF

SELF ASSESSMENT QUESTION: When would you consider the initiation of inhaled ceftazidime in PwCF with a Pseudomonas infection?

BACKGROUND: Cystic Fibrosis (CF) is a genetic disease caused by mutations in the cystic fibrosis transmembrane conductance regulator gene which can cause mucociliary dysfunction in the lungs, leading to ineffective clearance of inhaled bacteria such as Pseudomonas aeruginosa. Chronic P. aeruginosa infection can lead to progressive lung function decline and remains the most important contributor to CF morbidity and mortality. The Cystic Fibrosis Foundation Pulmonary Guidelines developed for the prevention and treatment of P. aeruginosa infections strongly recommend the use of inhaled antibiotics to reduce the risk of pulmonary exacerbation. Current inhaled anti-Pseudomonal therapies used in practice include colistin, tobramycin, and aztreonam. As treatment options for anti-Pseudomonal therapy remain limited, the current use of outpatient inhaled ceftazidime at Emory Healthcare will be evaluated retrospectively in persons with CF (PwCF). The purpose of this study is to evaluate patient outcomes including prescribing practices, tolerability, and efficacy of inhaled ceftazidime in PwCF and Pseudomonas growth.

METHODOLOGY: This single-center, retrospective chart review consists of patients with a documented diagnosis of cystic fibrosis (CF) or CFTR-related disorder, positive Pseudomonas sputum culture, and were initiated on and received at least one dose of inhaled ceftazidime at the Emory Adult CF clinic from January 1, 2021 to December 31, 2023. Patients will be identified for inclusion through an Epic report list by identifying ceftazidime prescriptions. The primary outcome is to evaluate the tolerability and use of inhaled ceftazidime therapy in PwCF. Secondary outcomes include changes in pulmonary exacerbations, hospitalizations, lung function, and sputum culture microbiology prior to and post inhaled ceftazidime therapy. The resolution of adverse effects to baseline anti-Pseudomonal therapies will also be evaluated.

RESULTS: In Progress

CONCLUSIONS: In Progress

3:10pm – 3:25pm F **Evaluation of short vs. prolonged durations of surgical prophylaxis after spinal procedures with drain placement** Athena D

Presenters: Caroline Jackson

TITLE: Evaluation of short vs. prolonged durations of surgical prophylaxis after spinal procedures with drain placement

AUTHORS: Caroline Jackson, Ben Ereshefsky

OBJECTIVE: Assess the incidence of SSI in patients receiving short vs. prolonged surgical prophylaxis

SELF ASSESSMENT QUESTION: You are rounding in the Neurology Intensive Care Unit and notice that your patient that went for a surgical spinal fusion has just returned to the unit on vancomycin monotherapy and has 2 drains in place. What recommendation will you give to the team regarding antibiotic prophylaxis?

BACKGROUND: Determine the incidence of surgical site infections (SSI) in patients receiving spinal fusion surgery with drain placement and antimicrobial prophylaxis for 24 hours or less post-surgery compared to more than 24 hours post-surgery. Surgical antimicrobial prophylaxis is indicated and recommended by current guidelines in order to prevent SSI. In the setting of any surgical procedure requiring indwelling drain placement, current guidelines recommend against continuation of antibiotic prophylaxis for more than 24 hours after completion of the surgery. Use of prophylactic antibiotics over 24 hours is thought to increase the risk of superinfections, drug-resistant organism development, and cost-of-care.

METHODOLOGY: A retrospective, single-center analysis was conducted in patients that received antimicrobial prophylaxis for spinal fusion surgery with drain placement at Vanderbilt University Hospital (VUH) in Nashville, Tennessee from January 1, 2022 to December 31, 2022. To be included in this study, patients had to be at least 18 years of age and receive at least one dose of antimicrobial surgical prophylaxis for a spinal surgery that required drain placement. Patients were excluded if they received antibiotic treatment for a bacterial infection within 48 hours before or after spinal surgery or if they received additional surgical procedures after the index surgery that required further antimicrobial prophylaxis while their drain(s) remained in place. Patient data was identified and collected using the Infectious Prevention Database and the electronic medical record. The primary outcome was incidence of any surgical site infection at 90 days. Secondary outcomes included any 30-day post-operative superficial incisional SSI, any 90-day post-operative deep incisional SSI, any 90-day post-operative organ/space SSI, any 90-day C. difficile infection, any 90-day multidrug resistant organism or any hospital-acquired acute kidney injury.

RESULTS: A total of 727 patients qualified for inclusion of the IRB-approved analysis, 429 patients were included in the standard course group (antibiotic prophylaxis for 24 hours or less) and 298 patients were included in the prolonged course group (antibiotic prophylaxis more than 24 hours). On average, patients were 62 years old and the majority were male (57.6%). About 22% of patients presented with a history of diabetes and 18% identified themselves as a current smoker at the time of surgery. Drains remained in place for a median of 3.2 days while the median time on antibiotic prophylaxis was 16 hours. The most common prophylactic antibiotic regimens included cefazolin with vancomycin, cefazolin monotherapy, and vancomycin monotherapy, respectively. A total of 15 (2.1%) surgical site infections (SSI) were identified at 90 days, 8 (1.9%) in the standard course group and 7 (2.3%) in the prolonged course group. The most common type of SSI was an organ/space SSI (40%) followed by a deep incisional SSI (33.3%) and superficial incisional SSI (26.7%), respectively. The most common bacteria isolated as an SSI pathogen were Staphylococcus aureus followed by Enterobacter cloacae, with no major difference between the incidence of AKI between groups.

CONCLUSIONS: The use of antibiotic prophylaxis for patients undergoing spinal surgery with drain placement is necessary to prevent incidence of SSI. Use of antibiotic prophylaxis for 24 hours or less, opposed to use of antibiotic prophylaxis for over 24 hours, should be utilized in order to prevent SSI in patients receiving spinal

surgery with drain placement since it is effective in preventing SSI while also limiting unnecessary antibiotic exposure.

3:10pm – 3:25pm F **Real-World Effectiveness of Dalbavancin for Invasive Gram-Positive Bacterial Infections** Athena C

Presenters: Jake Crocker

TITLE: Real-World Effectiveness of Dalbavancin for Invasive Gram-Positive Bacterial Infections
AUTHORS: Jake Crocker, Caroline Derrick, Julie Justo, Brandon Bookstaver, Ismaeel Yunusa, Morgan Pizzuti
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Dalbavancin is a long-acting lipoglycopeptide, FDA approved for treatment of acute bacterial skin and skin structure infections. Emerging data show benefit for treatment of bacteremia, prosthetic joints, osteomyelitis, endocarditis, and endovascular infections. The purpose of this study was to evaluate the real-world effectiveness of dalbavancin for the treatment of invasive gram-positive infections.
METHODOLOGY: This multicenter, retrospective cohort study of adult patients from February 27, 2021 to December 31, 2023 included those that received at least one dose of dalbavancin for the treatment of a confirmed or presumed invasive gram-positive infection. Invasive infections were defined as bacteremia, endovascular, septic arthritis, osteomyelitis, prosthetic joint, endocarditis, or other infection requiring more than four weeks of therapy. Patients were excluded if they received dalbavancin for indefinite chronic suppression. Intention to treat (ITT) was defined as patients who received at least one dose of dalbavancin, and per protocol was patients who received at least two doses within 7 days of expected date of administration. The primary outcome was proportion of patients with clinical failure in the per protocol group. Secondary outcomes were proportion of logistic failures, clinical failures, and those with treatment-emergent adverse events in the ITT group. Multivariable logistical regression models were performed to identify factors associated with clinical and logistical failure.
RESULTS: TBD
CONCLUSIONS: TBD

3:10pm – 3:25pm E **Excipient Exposure in the Neonatal Intensive Care Unit Population** Athena H

Presenters: Monica Acharya

TITLE: Excipient Exposure in the Neonatal Intensive Care Unit Population

AUTHORS: Monica Acharya, Katie Glover, Elizabeth McCormick

OBJECTIVE: Identify excipients with potential risks to neonates from exposure

SELF ASSESSMENT QUESTION: Based on the results of the study, which of the following excipients exceeded the recommended ADI?

BACKGROUND: Excipients play an important role as preservatives, solvents, and sweetening agents. They help maintain quality of the drugs while improving palatability. Knowledge of excipient's effects on neonates is limited as standard acceptable daily intake (ADI) in pediatrics is not available for all excipients. At birth, neonates do not have fully functioning organs and are unable to efficiently break down harmful excipients into a less toxic form. This may result in less clearance, longer half-lives, and increased accumulation of excipients in the body. The purpose of this study was to examine excipient exposure in neonatal intensive care unit (NICU) patients with the aim of reducing harm.

METHODOLOGY: This was a single-center, retrospective chart review of neonates admitted to NICU at Wellstar Kennestone Regional Medical Center who received excipients of interest from August 1, 2022 to August 1, 2023. Eligible patients included admission to NICU within 24 hours of birth, gestational age ≤ 40 weeks, and received at least one excipient of interest during the hospital admission. The date with the highest excipient exposure based on body weight and dose was recorded. The primary endpoint was to examine whether excipient exposure was above the recommended ADI in NICU patients, while the secondary endpoint was to study the relationship between excipient exposure and risk of comorbidities, specifically bronchopulmonary dysplasia (BPD), necrotizing enterocolitis (NEC), and seizures. Excipients of interest included benzoic acid, benzyl alcohol, ethanol, methylparaben, polysorbate 80, propylene glycol, propylparaben, saccharin, sodium benzoate, and sorbitol.

RESULTS: Infant multivitamin with iron, infant multivitamin, and ferrous sulfate consisted of 70% of the medications administered to neonates. Among 87 neonates included in the study, 63% exceeded the ADI in any of the 8 excipients. Propylene glycol exceeded the ADI by 217 times, and sorbitol exceeded by 25 times. In contrast, ethanol exceeded the ADI by 2 times in term neonates only. For benzyl alcohol, neonates received a median dose of 4.82 mg/kg/day in contrast to the recommended 0 mg/kg/day. Neonatal exposure to methylparaben and propylparaben did not exceed the recommended ADI. Based on adult ADI, benzoic acid and polysorbate 80 did not exceed the recommended ADI. No data was available to assess ADI for saccharin and sodium benzoate. In addition, 10% of neonates were diagnosed with BPD, 2% with NEC, and none with seizures. More extremely preterm and very preterm neonates exceeded ADI and were diagnosed with BPD or NEC compared to other gestational ages.

CONCLUSION: Excipients that exceeded the recommended ADI were benzyl alcohol, ethanol, propylene glycol, and sorbitol. Regardless of excipient exposure, extremely preterm and very preterm neonates are at inherent risk of BPD and NEC. Therefore, an association between excipient exposure and risk of comorbidities cannot be

made. Limiting polypharmacy, acquiring preservative-free IV medications, and compounding oral medications without unnecessary excipients are recommended to limit excipient exposure in neonates.

3:10pm – 3:25pm S **Impact of Oral vs Long-Acting Injectable Antipsychotics on Hospital Readmission Rates** Athena A

Presenters: Khadijah Posey

TITLE: Impact of Oral vs Long-Acting Injectable Antipsychotics on Hospital Readmission Rates

AUTHORS: Khadijah Posey, Abigayle Campbell, Julie Leonard

OBJECTIVE: To determine the influence on hospital readmission rates when comparing long-acting injectable (LAI) antipsychotics versus oral antipsychotics at discharge in patients diagnosed with schizophrenia, schizoaffective disorder, or bipolar disorder.

BACKGROUND: LAI antipsychotics are beneficial in decreasing hospitalizations, rates of treatment discontinuation, hospital costs, and risks of mortality. According to the American Psychiatric Association, LAI's can improve medication adherence in patients who present with dysphagia or who have difficulty remembering to take medications. The objective of this study is to determine the influence on hospital readmission rates when comparing LAI antipsychotics versus oral antipsychotic treatment at discharge in patients diagnosed with schizophrenia, schizoaffective disorder, or bipolar disorder.

METHODOLOGY: This is a single center, retrospective, chart review with the primary endpoint of assessing if LAI and/or oral antipsychotics prescribed at discharge decrease readmission rates. Inclusion criteria are: age 18-65 years old, admitted to the behavioral health unit at Self Regional Healthcare, diagnosis of schizophrenia, schizoaffective disorder, or bipolar disorder, and be discharged from the hospital between the dates of January 1, 2022 to December 31, 2022 on an oral and/or an LAI antipsychotic. The antipsychotics to be included are both the oral and LAI formulations of risperidone, aripiprazole, paliperidone, haloperidol, and fluphenazine. Patients will be excluded if they are discharged to any of the following: long term facility, prison, or skilled nursing facility or if they are prescribed an oral antipsychotic without an LAI formulation. The patients will be followed for a year from discharge to determine the number of readmission rates using an electronic medical record system. Secondary endpoints include the following: one year readmission rates to other healthcare facilities and the frequency of emergency room visits. Data collection will consist of age, sex, race, baseline lipid panel, weight, blood glucose levels, electrocardiogram, psychiatric comorbidities, readmission dates/locations, as well as the drug name, dose, frequency, and formulation of the antipsychotic at discharge. All data used will be confidentially recorded and de-identified.

RESULTS: A total of 96 patients were collected during the initiation of this study. However, 25 were excluded due to diagnosis, age, discharge medication, and discharge date. Therefore, a total of 71 patients were included in the study. Only 30.9% of patients were readmitted within one-year in the LAI antipsychotic group (n=42), 31.8% in the oral antipsychotic group (n=22), and 57.1% in the dual antipsychotic group (n=7) ($p = 0.425$). Self Regional Healthcare had the highest one-year readmission rates amongst groups compared to other local healthcare facilities such as AnMed Medical Center and Prisma Health Upstate (32.3% vs. 2.8% vs. 2.8%). The frequency of readmissions to any facility due to an emergency room visit was 7.3% in the LAI group, 3.5% in the oral group, and 5.1% in the dual group ($p = 0.115$). Only 1.4% of patients, within the study, suffered an all-cause mortality. This was, in fact, not related to antipsychotic treatment or any other mental health-related concern.

CONCLUSIONS: LAI antipsychotics are continuing to grow throughout the psychiatric field. They are beneficial in improving overall medication adherence which will, in turn, decrease the risks of disease relapse and hospital readmission rates. Aripiprazole lauroxil (n=14) and paliperidone palmitate (n=23) were the two most discharged LAI antipsychotics whereas aripiprazole (n=9) and risperidone (n=10) were the two most discharged oral antipsychotics. Although there were no statistically significant differences noted, limitations played a role in the results of this study. Expanding the inclusion criteria to include all psychiatric conditions and more available LAI antipsychotics outside of Self Regional's formulary will increase sample size and help determine a true statistically significant difference in hospital readmission rates when comparing LAI vs. oral antipsychotics.

3:40pm – 3:55pm F **Discontinuation rates of integrase strand transferase inhibitors due to weight gain** Athena C

Presenters: Saira Mirza

TITLE: Discontinuation rates of integrase strand transferase inhibitors due to weight gain

AUTHORS: Saira Mirza, Niaima Geresu, Bradley L. Smith, Joseph Torrisi

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Current treatment guidelines recommend antiretroviral therapy (ART) for people living with HIV (PLWH) to reduce morbidity and mortality and prevent the transmission of HIV to others. Integrase strand transfer inhibitors (INSTIs) are recommended as first-line options for ART due to their high efficacy, tolerability, safety, and high barrier to resistance. These medications have been associated with more weight gain than other antiretroviral options. Guidelines recommend against INSTI discontinuation due to metabolic changes. We aim to review the discontinuation rates of INSTIs due to weight gain at our institution.

METHODOLOGY: This is a single-center, retrospective chart review aimed to evaluate and assess the percentage of PLWH discontinuing bictegravir (BIC) or dolutegravir (DTG) due to weight gain. Patients were included if they were 18 years or older with a diagnosis of HIV and were initiated on a BIC- or DTG-based regimen for at least six months from January 1, 2018 to December 31, 2022. Patients were excluded if they had a prior diagnosis of diabetes or hyperlipidemia, used weight-altering medications six months before initiation of an INSTI, or had no documentation of weight or HIV RNA before and after switching ART. The primary outcome is the percentage of patients discontinuing their BIC- or DTG-based regimen due to weight gain. Secondary outcomes include change in HIV RNA and metabolic factors such as weight, hemoglobin A1c %, low-density lipoprotein (LDL), and triglycerides (TG) after six months.

RESULTS: There were 354 patients screened with 200 patients included; 100 patients in each study arm. Study participants were mostly Black males with a median age of 41.5 years. One patient, a 58-year-old Black male on dolutegravir/abacavir/lamivudine (DTG/ABC/3TC), experienced a 23.6 kg increase in weight and met the primary outcome. The patient was switched from DTG/ABC/3TC to rilpivirine/emtricitabine/tenofovir (RPV/FTC/TAF), an NNRTI-based regimen. After 6 months of the new regimen, the patient gained an additional 3.6 kg in weight. Prior to ART initiation, the patient's HIV RNA was 216,870 copies/mL. After the initiation of DTG/ABC/3TC, the patient's HIV RNA became undetectable and remained undetectable after the switch to RPV/FTC/TAF. Of the patients who did not discontinue their INSTI, there were 135 who had documented follow-up weights with patients gaining a median of 7 kg. The number of patients with an undetectable HIV RNA at follow up went from 53 to 95, indicating an overall decrease in HIV RNA values. There were minimal changes in metabolic factors from baseline to follow-up.

CONCLUSIONS: Our findings indicate that providers were not likely to discontinue patient's INSTI-based regimen due to weight gain. Patients on DTG- and BIC-based regimens experienced slight increases in median weight and A1c. Current practice at our institution follows the guideline recommendations to avoid discontinuation of first-line therapies due to metabolic effects. Our study had several limitations including a small sample size, short study duration, and an inability to assess changes in efficacy and metabolic effects when switching to non-INSTI ARTs due to minimal discontinuation rates. We were unable to assess medication persistence in our patient population. The results of this retrospective chart review at a large academic medical center show minimal rates of discontinuation of INSTI-based regimens due to weight gain. These findings support the need for further assessment on the management of ART in PLWH who experience weight gain due to INSTIs.

3:40pm – 3:55pm T **Utilization of Diuretic Bolus Prior to Continuous Infusion in Acute Decompensated Heart Failure** Athena B

Presenters: Ashton Mason

TITLE: Utilization of Diuretic Bolus Prior to Continuous Infusion in Acute Decompensated Heart Failure

AUTHORS: Ashton Mason, Gabrielle Iliff, Courtney Reddig, Kavita Patel

OBJECTIVE: Determine the clinical impact of bolus dosing prior to loop diuretic continuous infusion

SELF ASSESSMENT QUESTION: Does bolus dosing prior to initiation of loop diuretic continuous infusion affect urine output?

BACKGROUND: The DOSE trial compared bolus vs. continuous infusion loop diuretic therapy and found no significant difference in patient symptoms or renal function. Due to no bolus given prior to continuous infusion in this trial, there is further need for investigation into optimal diuresis strategies. The purpose of this study is to determine the effect of bolus dosing prior to continuous infusion compared to continuous infusion alone on urine output.

METHODOLOGY: This was a retrospective, cohort study of adult patients hospitalized in the heart failure unit or CPICU at Prisma Health Richland from June 2022 through June 2023. Patients diagnosed with acute decompensated heart failure who received a continuous infusion of furosemide or bumetanide for at least 24 hours were included in the study. The primary outcome was cumulative urine output at 72 hours. The secondary outcomes were changes in serum creatinine, days to euvolemia, and changes in weight.

RESULTS: In Progress

CONCLUSIONS: In Progress

3:40pm – 3:55pm D **Implementing an Herbal Supplement Comprehensive Medication Management Service in the Salisbury VA** Athena J

Presenters: Maddie Pelham

TITLE: Implementing an Herbal Supplement Comprehensive Medication Management Service in the Salisbury VA

AUTHORS: Maddie Pelham, Courtney Goodman

OBJECTIVE: Describe medication interventions made during a comprehensive medication management appointment

SELF ASSESSMENT QUESTION: What is an herbal supplement?

BACKGROUND: Supplements are products that people take in addition to what they eat, including vitamins, minerals, herbals, amino acids, and a multitude of other compounds. Over 30% of U.S adults take both supplements and prescription medications, but 42% of people taking supplements do not report their use to their healthcare providers. Rates of supplement use are high in older adults and Servicemembers, with 74% of Servicemembers reporting supplement use at least once per month. Supplements can be beneficial for a patient's health, but they do not come without risks. Reported risks include drug interactions, decreased efficacy of other medications, and serious to mild side effects such as risk of bleeding to liver toxicity. Due to these concerns, a Clinical Pharmacist Practitioner (CPP) started a once monthly virtual supplement educational class. The purpose of this project is to implement a comprehensive medication management service and evaluate Veterans' individual supplement regimens for Veterans who completed the supplement group class.

METHODOLOGY: This is a prospective quality improvement initiative. Veterans who attended a supplement education group will be offered a comprehensive medication management (CMM) appointment by a CPP or pharmacy resident. The data collection period is October 1, 2023 through March 30, 2024. The primary outcomes are to determine the number of interventions made by the CPP during the CMM appointment focusing on herbal and dietary supplements and to analyze the questions Veterans asked about herbal and dietary supplements. The secondary outcome is to evaluate the feasibility of continuing the CMM service.

RESULTS: TBD

CONCLUSIONS: TBD

3:40pm – 3:55pm M **Assessment of Inhaled Corticosteroid Prescribing Patterns in Patients with COPD** Athena G

Presenters: Kelsee Tignor

TITLE: Assessment of Inhaled Corticosteroid Prescribing Patterns in Patients with COPD

AUTHORS: Kelsee Tignor, PharmD; Laura Schalliol, PharmD, BCACP, BCGP; Katie Kiser, PharmD, BCACP

OBJECTIVE: Determine the percentage of patients who do not meet criteria for ICS initiation per guidelines

SELF ASSESSMENT QUESTION: What role could pharmacists play in determining appropriateness for ICS initiation?

BACKGROUND: The purpose of this research is to evaluate if an ICS has been initiated or added per the 2023 GOLD guidelines. The primary outcome is to identify the percentage of patients that do not meet the guidelines.

METHODOLOGY: Participants were identified based upon a retrospective chart analysis. Adult patients with prescriptions for budesonide, mometasone, or fluticasone between 01/01/23 and 07/31/23 and an active COPD diagnosis per ICD-10 codes were eligible.

RESULTS: 66 patients were included. 5 patients were prescribed an ICS as defined by the guidelines. 92.4% of the population did not have documented blood eosinophil levels to indicate need for the initiation of their ICS.

CONCLUSIONS: ICSs are being prescribed without investigation into blood eosinophil lab values. There is opportunity for pharmacist education and the expansion of a CPA to help in selection and management of pharmacotherapy for COPD patients.

3:40pm – 3:55pm M **Provider identified barriers to utilizing a clinical pharmacist in the management of type 2 diabetes** Athena H

Presenters: Macy Worley

TITLE: Provider identified barriers to utilizing a clinical pharmacist in the management of type 2 diabetes

AUTHORS: Macy L. Worley, Heather McLeod, Elizabeth Hudson, Halee Parham, Heather O'Brien

OBJECTIVE: Identify patients who would be appropriate candidates for referral to a CPP for diabetes management.

SELF ASSESSMENT QUESTION: Which patient would be most appropriate for a referral to a CPP for diabetes management within a primary care clinic?

BACKGROUND: Type 2 Diabetes Mellitus (T2DM) is a widespread, chronic condition that can impact individuals of varying ages and ultimately lead to life-threatening complications, if not managed appropriately. Today, roughly 37 million Americans have diabetes, with approximately 90-95% of them having T2DM. As the incidence of T2DM continues to increase, concerns arise as to whether there will be enough endocrine providers to maintain timely care with both existing and newly referred patients. In an effort to provide timely care to all patients, the American Diabetes Association is an advocate for a team-based approach to diabetes care, by incorporating professionals from various backgrounds such as: nurses, certified diabetes care and education specialists, physicians, physician assistants, nurse practitioners, and clinical pharmacists. The purpose of this project is to identify the common barriers that are resulting in a high T2DM referral volume to the Cape Fear Valley (CFV) Diabetes and Endocrine Center and to provide pharmacist-led provider education, regarding the benefits of utilizing a clinical pharmacist.

METHODOLOGY: This single center, retrospective, quality improvement study evaluated the common barriers to utilizing a clinical pharmacist in the management of patients with T2DM prior to referral to an endocrinology clinic. All providers within the CFV Senior Health Services & CFV Internal Medicine clinics were eligible for inclusion to complete the barrier survey and to receive pharmacist-led referral education. The primary objective was to describe the barriers to utilizing a clinical pharmacist for the management of T2DM in primary clinics via provider survey. The secondary objective was to compare inappropriate endocrine referrals eligible for visit with a clinical pharmacist before and after provider education.

RESULTS: The barrier survey results suggest a lack of defined referral criteria for patients with T2DM to qualify for a referral to a clinical pharmacist versus endocrinology. Additionally, the survey confirmed that providers display a high level of confidence in the abilities of a clinical pharmacist and are more likely to refer if their patient would benefit from additional diabetes education or device training. A total of 48 patients were screened and 46 patients met inclusion criteria for analysis. Prior to referral education, there were 3 appropriate and 13 inappropriate referrals. After referral education was provided by the clinical pharmacist within the respective primary care clinics, there were 3 appropriate and 27 inappropriate referrals.

CONCLUSIONS: Preliminary data suggests that providers are aware of the management capabilities of a clinical pharmacist for T2DM. However, there is a lack of clearly defined referral criteria within the health system that is contributing to the inappropriate referral volume.

3:40pm – 3:55pm C **Evaluation of the Impact of Academic Detailing on the Use of GDMT in Patients with Heart Failure** Parthenon 1

Presenters: Lori Cheng

TITLE: Evaluation of the Impact of Academic Detailing on the Use of GDMT in Patients with Heart Failure

AUTHORS: Lori Cheng, Amanda Holloway, Bridget Roop

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Annual costs related to HF is about $30.7 billion which is a substantial burden to the U.S. healthcare system. Despite efforts made to reduce readmissions, 1 in 4 patients are readmitted within 30 days of discharge. Academic Detailing is an existing one-on-one educational outreach technique used to promote unbiased, evidence-based treatments to clinicians with the goal of improving quality care and patient outcomes. Originated in the 1980s, this technique has been adopted by many healthcare systems to encourage evidence-based prescribing and improve clinical practice. The purpose of this project is to evaluate, within a VA Health Care System, the association between Academic Detailing and utilization of heart failure GDMT by providers or clinicians.

METHODOLOGY: This project consists of an Academic Detailing intervention focusing on utilization of GDMT in patients with heart failure where endpoints will be collected through retrospective chart review on a data collection form. The intervention will be education provided to primary care providers and hospitalists regarding the benefits of using GDMT in patients with heart failure. Primary Care providers that receive education will be selected through the HF Patient Report Dashboard based on opportunity for improvement in the use of GDMT in addition to other factors such as willingness and availability to conduct the intervention. All hospitalists will receive education as well. The Academic Detailing intervention will be completed by the PGY-1 resident and Academic Detailer. Post-detailing data collection will begin 3 months after the detailing date. The primary outcome will be a comparison of the use of GDMT (angiotensin receptor blocker/neprilysin inhibitor, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker, sodium-glucose cotransporter-2 inhibitors, mineral , beta-blockers) in the 3 months prior to the Academic Detailing intervention and the 3 months after the Academic Detailing intervention.

RESULTS: For the primary outcome, overall, there was an increase of 7% in prescribing of sodium-glucose cotransporter-2 inhibitors (SGLT2 inhibitors) and a 3% increase in angiotensin receptor blocker/neprilysin inhibitor (ARNIs). In observation of individual providers, one provider showed an increase of 24% in prescribing of SGLT2 inhibitors and another showed an increase of 23% in prescribing of ARNIs. Overall, there was a 3% decrease renin-angiotensin-aldosterone system (RAAS) inhibitors, no change in prescribing of beta blockers, a 1% increase in prescribing of mineralocorticoid receptor antagonists (MRAs), and a 4% increase in loop diuretics.

CONCLUSIONS: Academic Detailing increases the use of SGLT2 inhibitors and ARNIs in the utilization of GDMT in heart failure patients.

3:40pm – 3:55pm C **Impact of intravenous iron on antibiotic duration in hospitalized patients with heart failure** Parthenon 2

Presenters: Zachary Blackmon

TITLE: Impact of intravenous iron on antibiotic duration in hospitalized patients with heart failure

AUTHORS: Zachary Blackmon, William Bibb, Kelley Baxter

OBJECTIVE: To determine if intravenous iron supplementation has an effect on an objective infection measure in heart failure patients.

SELF ASSESSMENT QUESTION: What impact does intravenous iron supplementation have on antibiotic duration in hospitalized heart failure patients?

BACKGROUND: The 2022 AHA/ACC/HFSA heart failure guidelines recommend the use of intravenous (IV) iron replacement over oral iron replacement for those with iron deficiency, with or without anemia. This improves oxygen delivery to tissue and thus improves exercise capacity and quality of life. However, there is a biological basis of concern that excess unbound iron can increase the risk of infection. Even in chronic kidney disease, the use of IV iron is generally avoided in those with an active infection. There is ongoing discussion among the physicians at Ascension Saint Thomas Hospital West whether this is a true risk or not within heart failure patients. The purpose of this study is to determine what impact intravenous iron has on antibiotic duration in heart failure patients.

METHODOLOGY: This is a single center retrospective chart review of adult patients with heart failure at Ascension Saint Thomas Hospital West between June 1, 2022 and June 1, 2023. Heart failure patients at least 18 years of age or greater who received at least one antibiotic for greater than or equal to 48 hours were included. Patients were excluded for immunocompromised conditions, continuation of outside antibiotics upon admission, and pregnant or incarcerated patients. The primary outcome is the total duration, in days, of antibiotic therapy. Secondary outcomes include inpatient length of stay and mortality. Outcomes compared those who received IV iron before or during antibiotic administration (IV iron group) versus those who either received IV iron after antibiotic completion or did not receive it at all (no iron group).

RESULTS: Sixty-four patients were included in this study. Sixteen were included in the IV iron group and 48 were included in the no iron group. When compared to the no iron group, the IV iron group did not significantly increase the days on antibiotics (5.8 days versus 5.9 days, P=0.4805), inpatient length of stay (11.5 days versus 9.0 days, P=0.1184), or inpatient mortality (18.8% vs 4.2%, P=0.0949).

CONCLUSIONS: In this study, the use of IV iron supplementation in adult heart failure patients who received antibiotic therapy and had a presumed infection did not lead to an increase in days of therapy. Even though a statistically significant increase was not seen, there was a trend towards increasing inpatient length of stay and mortality. This study had many limitations including a small sample size, only one infection outcome being investigated, and its being retrospective in design. Additional studies that investigate other infection outcomes apart from antibiotic duration should be conducted.

3:40pm – 3:55pm R **Evaluation of a Regional Citrate Anticoagulation Protocol in Continuous Venovenous Hemodiafiltration** Olympia 1

Presenters: Kelsea Mabie

TITLE: Evaluation of a Regional Citrate Anticoagulation Protocol in Continuous Venovenous Hemodiafiltration

AUTHORS: Kelsea Mabie, Rutvi Patel, Emma Peacock, Leslie Phillips, Lucy Crosby, Christy Forehand

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: During continuous renal replacement therapy (CRRT), blood contact with external factors activates prothrombotic mediators, leading to fibrin deposition in the filter. Thus, anticoagulation is preferred during CRRT to prevent filter thrombosis. Kidney Disease – Improving Global Outcomes guidelines recommend regional citrate anticoagulation (RCA) over systemic heparin for patients receiving CRRT. RCA has been shown to extend dialysis filter life and be associated with less bleeding risk. However, RCA can potentially cause citrate toxicity, and requires careful dosing and monitoring to ensure safety. There is a paucity of literature describing how to effectively and safely perform RCA in patients receiving continuous venovenous hemodiafiltration (CVVHDF). Additionally, the use of commercially available products, though not FDA-approved for this indication, has risen in comparison to compounded products as their use may eliminate compounding errors, reduce delays to starting CRRT, and decrease production costs. This study was designed to investigate the efficacy and safety of a nurse-driven RCA protocol, using a commercially available RCA product, in adult patients receiving CVVHDF.

METHODOLOGY: This single-center, retrospective electronic medical record review evaluated adult patients initiated on RCA for CVVHDF for at least 24 hours from April 1, 2019 to September 30, 2023. Primary efficacy outcomes included mean time from initiation of RCA to achieving goal ionized calcium (iCa) in the dialysis circuit and patient, and percent of iCa levels at goal in the circuit and patient throughout RCA duration. Efficacy was defined as 80% of values from both the circuit and the patient being in range. Secondary safety and compliance outcomes investigated nurse compliance, including adherence to lab monitoring schedule and calcium and citrate infusion rate adjustments. Compliance was defined as 80% of lab collections and adjustments being in accordance with the protocol. A safety outcome, incidence of citrate toxicity, was assessed via serum total calcium to serum iCa ratio. Cases of suspected citrate toxicity will be adjudicated by a nephrology provider for confirmation. Additional outcomes included filter life, incidence of new bacteremia during CRRT, and duration of RCA and CRRT.

RESULTS: A total of 905 encounters were screened, and 104 encounters were included in the final analysis. The average duration of CRRT was 63.84 hours. The majority (84.1%) of filters did not need to be changed before 72 hours. Mean time from initiation of RCA to goal circuit iCa was 4.67 hours, and five patients never achieved a goal circuit iCa while on CRRT. Mean time from initiation of calcium infusion to goal patient iCa was 11.2 hours and one patient did not obtain a goal level during their CRRT duration. Desired circuit iCa levels were achieved 58.7% of the time, and desired patient iCa levels were achieved 69.4% of the time overall. Circuit iCa labs were obtained correctly 73.84% of the time and correct adjustments per protocol were made 65.4% of the time. Patient iCa labs were obtained correctly 75.1% of the time and correct adjustments were made 70.8% of the time.

CONCLUSIONS: Prespecified efficacy and safety margins (≥80%) were not found during review. No obvious association was observed between out-of-range iCa values and nursing protocol compliance. Due to majority of circuit iCa values being above goal and optimal filter being observed, this could indicate that the current protocol is too strict. A wider range of accepted iCa values for circuit anticoagulation may be reasonable. Nurse barriers to compliance and methods to improve protocol adherence are being investigated.

3:40pm – 3:55pm R **IMPACT OF THIAMINE DOSING STRATEGIES ON LACTATE CLEARANCE IN SEPTIC SHOCK** Olympia 2

Presenters: Ali Goforth

TITLE: IMPACT OF THIAMINE DOSING STRATEGIES ON LACTATE CLEARANCE IN SEPTIC SHOCK

AUTHORS: Ali Goforth, Sterling Torian, Alex Fagan, Kendra Spilkin

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Thiamine supplementation is a common adjunctive strategy used in the treatment of septic shock. Thiamine has the proposed benefit of increased lactate clearance as well as a low cost and a positive safety profile. Despite being widely used for septic shock, an accepted dosing strategy for thiamine has yet to be established. Current literature has utilized intravenous (IV) thiamine doses ranging from 400 to 1500 milligrams per day. To our knowledge, no direct comparisons between the differing dosing strategies and the impact on lactate clearance have been evaluated. The purpose of this study is to evaluate the effects of thiamine supplementation with lower dosing strategies versus higher dosing strategies on lactate clearance in septic shock.

METHODOLOGY: This is a retrospective cohort study conducted through chart review from September 1, 2018 to September 1, 2023. Patients were identified based on the International Classification of Diseases-9 and International Classification of Diseases-10 codes for septic shock at admission. Additional inclusion criteria included the patient being greater than or equal to 18 years old, admitted to the intensive care unit at our institution within 24 hours of admission, a baseline elevated lactate level (greater than 2 millimoles per liter) within the first 24 hours, and receipt of intravenous thiamine within the first 24 hours after admission. Patients were excluded from this study if they were pregnant, if death occurred within the first 24 hours after admission, or if the initial elevated lactate was not associated with the septic shock diagnosis. The primary outcome was time to lactate clearance, defined as the time from the first recorded administration of thiamine to the time of the first reported cleared lactate level (less than or equal to 2 millimoles per liter).

RESULTS: A total of 170 patients were reviewed, with a total of 81 patients excluded for various reasons. Of thescreened, and 89 patients (n = 46 high dose; n = 43 low dose) included in this studymet inclusion and exclusion criteria for our study., 46 patients were assigned to the high dose thiamine group and 43 were assigned to the low dose thiamine group. Baseline characteristics were similar between the two groups. Patients with death prior to lactate clearance were excluded from the primary endpoint and a total of 64 patients were included in the analysis (n = 32 high dose; n = 32 low dose). With this exclusion, 32 patients remained in both the high and low dose thiamine groups and were included in the primary endpoint analysis. TheNo significant difference was observed in median time to lactate clearance for among those with the high dose thiamine group versus low dose thiamine (was 24.5 hours versus 40.0 hours24.5 vs. 40 hours; 95% CI, p=0.07). Additionally, with the low dose thiamine group; median difference -14.0 (-29.0-1.0); p=0.07). Tthere was were no statistically significant differences in any of the secondary endpoints between those with high dose and low dose thiamine, including the need for vasopressors at or beyond day 3 (43.5% vs. 55.8%), need for renal replacement therapy (17.4% vs. 23.3%), and in-hospital mortality (32.6% vs. 32.6%). A subgroup analysis of patients at risk for thiamine deficiency was performed and also found no statistically significant difference in the primary or secondary endpoints.

CONCLUSIONS: There was no difference in time to lactate clearance when using low dose thiamine strategies compared to high dose strategies; however, there was a trend towards an improvent in lactate clearance with the high dosing strategy in those presumed to be thiamine deficient at baseline. There was no difference in other clinically relevant secondary outcomes including vasopressor duration, need for renal replacement therapy, or in-hospital mortality.

3:40pm – 3:55pm F **Narrowing the Spectrum: Evaluating Impact of Pharmacist-Led Antimicrobial Stewardship Efforts** Athena D

Presenters: Abigail Thibodeaux

TITLE: Narrowing the Spectrum: Evaluating Impact of Pharmacist-Led Antimicrobial Stewardship Efforts

AUTHORS: Abigail Thibodeaux, Abigail J White, Bryan “Russ” Gunter

OBJECTIVE: To evaluate effectiveness of pharmacy-led antimicrobial stewardship efforts in a rural hospital

SELF ASSESSMENT QUESTION: What national standards for AMS are addressed by pharmacist intervention of resulting lab cultures?

BACKGROUND: Antimicrobial stewardship is a staple for optimizing the health and wellbeing of patients presenting to hospitals with infections nationwide. Inconsistent antimicrobial culture and sensitivity review processes, particularly in samples collected in the Emergency Department, place patients at risk for poor outcomes. Pharmacists are a key resource for this area of improvement, bringing instrumental knowledge and expertise for analyzing lab cultures and providing valuable insight to guide providers in making informed decisions. The primary purpose of this project is to ensure prescribing of targeted antibiotic regimens based on culture and sensitivity reports while minimizing side effects in a rural patient population.

METHODOLOGY: This study involves the concurrent review of non-critical culture and sensitivity reports collected and resulted in a 5 month period. Pharmacists will review newly resulted non-critical culture and sensitivity reports daily for accuracy and appropriateness of antimicrobial therapy. Data related to the daily review will be maintained on a secure database without patient identifiers to maintain confidentiality. Discovery of pathogen resistance or other factors requiring a change to the antimicrobial regimen prompts pharmacists to notify the provider with an optimized, guideline-based recommendation. Pharmacists then document therapeutic interventions into the electronic medical record and intervention database and patients will be contacted. The primary endpoints of this study include accuracy of the initial antibiotic regimen and the percentage of accepted pharmacist interventions. Secondary outcomes include evaluation of appropriateness of empiric antibiotic prescribing for urinary tract infections, provider satisfaction with process, and analysis of patients returning to the Emergency Department with treatment failure within ten days. Inclusion criteria includes patients with a positive urine or wound culture and a completed sensitivity report within the facility during the study period. Exclusion criteria includes patients being followed by an outside related specialist. This is a quality and process improvement project, exempt from the local Institutional Review Board.
RESULTS: Primary endpoints include accuracy of initial antibiotic regimen and percentage of accepted pharmacist interventions. Percent accuracy of initial antibiotic regimens was 89% based on percent of pharmacist interventions during the data collection phase. Accepted pharmacist interventions for 68 encounters were accepted 100% of the time. Secondary endpoints include appropriateness of empiric antibiotic prescribing for urinary tract infections, analysis of patients returning with treatment failure within ten days, and provider satisfaction with the pharmacy process. 22% of pharmacist interventions pertained to change in empiric therapy for UTI’s. Of patient infections requiring pharmacist interventions, 3 patients returned to the ED in total, and the majority of providers were overall satisfied with pharmacy intervention process.

CONCLUSIONS: Resulting data will be used for position justification reflecting pharmacist value for antimicrobial

stewardship effots in the emegency department at a rural hospital. A new policy has been implemented due to this quality improvement project involving a new routine inpatient pharmacy process and will continue to positively impact patient outcomes and hospital metrics through empiric therapy choices, cost avoidance, and contributions to decreasing antibiotic resistance and return patient visits to the ED at our site.

3:40pm – 3:55pm Y **Retrospective Evaluation of Ferric Carboxymaltose vs Iron Sucrose in Oncology Patients Treated at an Outpatient Infusion Center**

Presenters: Jessica Bergman

Athena A

TITLE: Retrospective Evaluation of Ferric Carboxymaltose vs Iron Sucrose in Oncology Patients Treated at an Outpatient Infusion Center

AUTHORS: Jessi Bergman, Courtney McDonald, Amber Keeton, Aayush Patel

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Patients with cancer often suffer from iron deficiency anemia as a result of their disease or as a side effect of treatment, leading to a decreased quality of life and impaired physical functioning. Intravenous iron products are preferred when oral products are poorly tolerated. Ferric carboxymaltose (FCM) and iron sucrose (IS) are commonly used to treat iron deficiency anemia. At an outpatient infusion center in Columbus, GA, ferric carboxymaltose 750 mg is given for two doses, at least seven days apart or iron sucrose is given as 300 mg three times in a one-week time period. In a meta-analysis, FCM was as effective at IS at obtaining a hemoglobin ≥ 10, but patients that received FCM reached a higher hemoglobin within a shorter time frame. In a recent study, IS was associated with an adverse reaction rate of 4.3%, while FCM was associated with adverse reactions in only 1.4% of patients. While there is evidence showing that FCM and IS have similar efficacies, treatment is selected at the discretion of physicians. The purpose of this study is to evaluate and compare the efficacy and safety of ferric carboxymaltose and iron sucrose used in cancer-associated anemia at an outpatient infusion center.

METHODOLOGY: An IRB approved retrospective chart review of 19 patients who received ferric carboxymaltose or iron sucrose for cancer-associated anemia was conducted between January 1, 2023, and June 30, 2023, at an outpatient infusion center. Patients were excluded if they did not have pre- and post-infusion laboratory results. The primary outcomes assessed the comparison of mean change in ferritin and hemoglobin from baseline to post-infusion follow up labs. The secondary outcomes assessed mean change in total iron binding capacity (TIBC) and unsaturated iron binding capacity (UIBC), comparison of anemia correction, defined as Hgb greater than or equal to 10 g/dL and ferritin greater than 25 mcg/L for both iron agents in patients with cancer, and the percentage of patients that experienced at least one treatment-emergent adverse event during infusion with associated grades. The outcomes were assessed using t-tests and descriptive statistics.

RESULTS: In Progress/TBD

CONCLUSIONS: In Progress/TBD

3:40pm – 3:55pm P **Opioid Analgesia in Patients Taking Buprenorphine for Opioid Use Disorder** Athena I

Presenters: Abby Cowan

TITLE: Opioid Analgesia in Patients Taking Buprenorphine for Opioid Use Disorder

AUTHORS: Abby Cowan; Hannah Denham; Hannah Henson; Megan Hintz; R. Eric Heidel

OBJECTIVE: Define the potential role of hydromorphone in pain management for patients on buprenorphine therapy for opioid use disorder .

SELF ASSESSMENT QUESTION: Which of the following are options for pain management in patients on buprenorphine therapy? A. Multimodal non-opioid agents, B. Opioids with high affinity to μ-opioid receptors, C. Avoidance of opioids D. Choices A and B

BACKGROUND: Concomitant use of buprenorphine for opioid use disorder (OUD) and opioids for acute pain management presents a unique challenge. Buprenorphine has a high binding affinity to μ-opioid receptors causing it to displace other opioids from the receptor. In comparison to other opioids the binding affinity of buprenorphine is 1.7 times higher than hydromorphone, 5.4 times higher than morphine, and 120 times higher than oxycodone. Theoretically, higher binding affinity contributes to receptor occupation. This study's purpose was to determine the total morphine milligram equivalent (MME) utilization in patients prescribed hydromorphone versus other opioids in patients on buprenorphine therapy.

METHODOLOGY: This was a retrospective cohort study of patients admitted from June 2021 to June 2023 conducted via electronic medical record review. Inclusion criteria were: ≥18 years of age, general medicine, surgery or critical care admissions, active prescription of buprenorphine in the outpatient setting, and ≥1 multimodal pain management agent during admission. Exclusion criteria were: <18 years of age, pregnancy, holding home buprenorphine ≥72 hours, and no receipt of opioids for pain management during admission. Data points include demographics, opioids utilized, MME utilization, highest, lowest, average pain score, multimodal agent utilization, continuation of home multimodal agents, home total daily buprenorphine dose, multimodal acute pain service (MAPS) consult, time to MAPS consult, length of stay, and readmission within 30 days. A standardized data collection form was utilized for secure data collection. The primary outcome of the study was MME utilization compared among patients receiving oral hydromorphone and other oral opioid analgesics. Secondary outcomes included multimodal agents utilized, MME comparison in patients switched to hydromorphone during admission, MAPS consults and time to MAPS consult, length of stay, and readmission within 30 days.

RESULTS: The study included 60 patients, 30 treated with hydromorphone and 30 treated with alternative opioids. Median MME utilization was significantly higher in the hydromorphone group (60 vs. 23; $p<0.001$). Longer lengths of stay and more trauma, surgery admissions were observed in the hydromorphone group. In patients within the hydromorphone group that were switched from an alternative opioid, lower median MME utilization was observed, however this was not statistically significant (69.5 vs 47; $p=0.71$).

CONCLUSIONS: The primary outcome result was not consistent with the initial hypothesis that MME utilization would be lower in patients who received hydromorphone. However, there were longer lengths of stays and more surgery, trauma admissions within the hydromorphone group. While not statistically significant, patients switched

from alternative opioids to hydromorphone during admission did experience lower MME utilization. In the future, a larger study with patients having similar admitting diagnoses and length of stays would be beneficial to further evaluate this proposed method of management when opioid analgesia is required for this patient population.

4:00pm – 4:15pm F **Impact of MRSA Nasal Screening on Vancomycin Duration for Pneumonia in Adult Trauma ICU Patients** Athena C

Presenters: Shelby Brookshire

TITLE: Impact of MRSA Nasal Screening on Vancomycin Duration for Pneumonia in Adult Trauma ICU Patients

AUTHORS: Shelby Brookshire, Olivia Randazza, Charles Hartis, Seth Garner, Kristin A. Rebo, Alex D. Taylor

OBJECTIVE: Describe the relationship of MRSA nasal screening on vancomycin duration for suspected pneumonia.

SELF ASSESSMENT QUESTION: Did implementation of the MRSA Nasal PCR assay impact duration of vancomycin for pneumonia in the trauma ICU?

BACKGROUND: Empiric MRSA coverage is often indicated in patients with lower respiratory tract infections, but de-escalation is frequently delayed until after cultures have resulted, which can take up to 96 hours. The absence of MRSA nares colonization has demonstrated a high negative predicative value for MRSA lower respiratory tract infections (98.1% for CAP and HAP; 94.8% for VAP). At this institution, nasal screening at intensive care unit (ICU) admission with the MRSA nasal PCR assay was implemented by Infection Prevention on June 30, 2022 to capture MRSA colonization rates and guide decolonization strategies. On September 14th, 2022, the MRSA nasal PCR assay was made available for providers to order to facilitate antimicrobial stewardship of empiric anti-MRSA therapy. Prior to PCR assay implementation, providers were able to order MRSA cultures as a surveillance tool. The aim of this study is to evaluate the impact of MRSA nasal PCR assay screening on duration of vancomycin therapy for suspected pneumonia in adult patients admitted to the trauma ICU (TICU).

METHODOLOGY: This study was a retrospective cohort analysis from January 1, 2022 to June 29, 2022 (pre-cohort) and January 1, 2023 to June 29, 2023 (post-cohort). Patients aged ≥ 18 years that were admitted to the TICU and initiated on empiric cefepime, meropenem, or piperacillin/tazobactam for suspected pneumonia, defined as receiving the aforementioned antimicrobials with radiographic evidence concerning for pneumonia, were included. Patients were excluded who received vancomycin for a non-pneumonia indication, were previously treated for pneumonia during the admission, had documented structural lung disease, or had a respiratory pathogen identified on culture at the time of antibiotic initiation. A report from the electronic health record was used to screen patients admitted to the TICU with empiric orders for cefepime, meropenem, or piperacillin/tazobactam for inclusion. Baseline demographics, nasal decolonization, culture and PCR assay results, and vancomycin days of therapy and levels were collected. The primary outcome was duration of vancomycin. Key secondary outcomes include PCR assay correlation with culture results (post-cohort only), opportunities for vancomycin de-escalation based on negative nasal MRSA PCR assay within 36 hours, and ICU and hospital length of stay and mortality. Univariate analysis was conducted using Student’s t-test or Mann-Whitney U test for comparison of continuous variables and Chi squared or Fisher’s exact test for comparisons of categorical data.

RESULTS: A total of 74 patients were included (37/cohort). The majority of patients were white (65% vs. 68%, *P* = 0.60). The median age was 51 years [36, 60] compared to 59 years [41, 65] (*P* = 0.14). The most common trauma was motor vehicle crash (43% vs. 62%, *P* = 0.06), and the majority of patients had trauma to the thoracic region (54% vs. 73%, *P* = 0.09). VAP was the most common pneumonia diagnosis (76% vs. 56%, *P* = 0.28). Cefepime was the most frequently received empiric antibiotic (100% vs. 97%, *P* = >0.99). More patients in the pre-cohort received nasal mupirocin (97% vs. 84%, *P* = 0.11). The primary outcome of vancomycin duration was 25.23 hours [14.17, 49.09] in the pre-cohort compared to 14.17 hours [0, 36.86] in the post-cohort (*P* = 0.02). In the pre-cohort, 1 patient (3%) never received vancomycin compared to 11 patients (30%) in the post-cohort (*P* = 0.002). MSSA was the most common organism identified on respiratory culture (30% vs. 16%, *P* = 0.17) with no MRSA identified in either cohort. In the post cohort, 32 patients (86%) had negative MRSA nasal PCR assays.

The negative predictive value of the MRSA nasal PCR assay for lower respiratory tract infection with MRSA was 100%. Of the 7 patients in the post cohort with a negative PCR assay in the preceding 72 hours and no MRSA identified on culture, 5 patients had vancomycin de-escalated within 36 hours of the PCR assay result. There were no statistically significant differences in ICU or hospital length of stay or mortality.
CONCLUSIONS: Vancomycin duration of therapy was significantly reduced after MRSA nasal PCR assay screening on ICU admission was implemented in the trauma ICU. MRSA was not identified on respiratory culture in either cohort, which indicates a lower incidence of MRSA pneumonia in the trauma patient population at this institution. Opportunities for improved stewardship of nasal mupirocin ointment use and empiric initiation of vancomycin were identified based on the results of this study.

4:00pm – 4:15pm Y **Implementation of Oral Anticancer Medication Early Monitoring Using Electronic Questionnaires** Athena A

Presenters: Tiffany Bui

TITLE: Implementation of oral anticancer medication early monitoring using electronic questionnaires
AUTHORS: Tiffany Bui, Brooke Looney, Josh DeClercq, Bridget Lynch, and Autumn Zuckerman
OBJECTIVE: Define the components of the RE-AIM framework
SELF ASSESSMENT QUESTION: Which of the following is NOT an element of the RE-AIM framework?
a)Reach b)Application c)Adoption d)Implementation e)Maintenance

BACKGROUND: The Hematology/Oncology Pharmacist Association recommends initial symptom and adherence monitoring within 7-14 days of oral anticancer treatment initiation. However, this frequency can be a challenge for specialty pharmacists in high volume oncology clinics. This study aimed to evaluate the implementation and effectiveness of using automated early monitoring questionnaires sent through the electronic health record (EHR) patient portal to support early patient monitoring.
METHODOLOGY: This was a single center, randomized, pragmatic cohort study conducted at Vanderbilt University Medical Center at the Ingram Cancer Center. Patients filling a new oral anticancer medication at Vanderbilt Specialty Pharmacy at least once from August 15th, 2023, to February 29th, 2024 were included. For the intervention group, pharmacists reviewed a real-time report of patients randomized to the intervention group with an initial counseling date 7-14 days prior to confirm treatment initiation within the last 7-14 days; if so, an automated early monitoring questionnaire evaluating treatment initiation and side effects was sent through the EHR. Pharmacists received in-basket messages with patients' responses and intervened when needed.
The primary outcome of this analysis was the implementation of the early monitoring questionnaire using the RE-AIM framework (reach, effectiveness, adoption, implementation, and maintenance). Reach, effectiveness, and adoption were assessed by the number of questionnaires sent, number of questionnaires responses, and number of pharmacist interventions. Implementation and maintenance were evaluated through responses to pre and post-implementation pharmacist surveys, and themes identified in semi structured interviews post-implementation.

RESULTS: As of submission, there were 416 patients enrolled in the study. Reach, effectiveness, and adoption results are pending. Outcomes available included survey and interview responses. Pre-implementation, all pharmacists felt implementing the early monitoring questionnaire into their workflow was somewhat (n=2) or very feasible (n=2) and believed the questionnaire would be well perceived by patients(n=4). Concerns included time requirements and remembering to run the report.
Post-implementation, pharmacists agreed (n=1) or strongly agreed (n=3) that the early monitoring questionnaire was appealing to them and all, but one agreed the questionnaire was easy to use. All but one pharmacist strongly agreed that patient care was improved by using the questionnaire. Pharmacists believed that there was somewhat (n=2) to very much (n=2) an ongoing need for early monitoring using the questionnaire. Pharmacists thought that the questionnaire was somewhat (n=1) to not at all burdensome (n=3) to the clinic and to workflow. Improvements included automating the report and adjusting patients appearing on the report to the anticipated medication start day (rather than initial counseling date).
Pharmacists noticed most patients did not have side effects and were very receptive and thankful for the additional follow up. All pharmacists believed the questionnaire changed their practice and was a subtle way to have an additional check in and touch point for the patient.

CONCLUSIONS: The use of early treatment monitoring questionnaire for patients who are started on new oral

anticancer medications was well perceived by patients and pharmacists. We plan to improve the tool by automating the report and adjusting the report to include patients based on actual start date, though this will require a change in pharmacist documentation.

4:00pm – 4:15pm M **Determining the Need for a Pharmacist Led CHF Clinic by Evaluating Prescribing Trends** Athena G

Presenters: Humna Meer

TITLE: Determining the Need for a Pharmacist Led CHF Clinic by Evaluating Prescribing Trends

AUTHORS: Humna Meer, Erika McDonald, Lauren Ladd, Amy Porter, Whitney Narramore

OBJECTIVE: Identify opportunities for a pharmacist to improve utilization of Guideline Directed Medical Therapy (GDMT) for patients with heart failure in an outpatient setting.

SELF ASSESSMENT QUESTION: Which one of the following therapy class showed the highest potential for pharmacist intervention to meet guideline directed medical therapy for management of heart failure?

A) Renin-angiotensin-aldosterone system inhibitors

B) β-blockers

C) Mineralocorticoid receptor antagonists

D) Sodium-glucose cotransporter-2 inhibitors (SGLT2i)

BACKGROUND: Uncontrolled congestive heart failure (CHF) is a leading cause of hospitalization at Blount Memorial Hospital as well as the United States. CHF exacerbations are often due to suboptimal pharmacotherapy and can be prevented by prescribing guideline directed medical therapy (GDMT), as outlined in the heart failure guidelines, to prevent disease progression and maintain symptom control. The purpose of this study is to evaluate the prescribing trends of GDMT at Blount Memorial Physicians Group (BMPG) clinics in Blount County, TN. Results of this study will be used to determine whether integration of a clinical pharmacist could improve implementation of GDMT.

METHODOLOGY: This is an IRB-approved, retrospective study evaluating prescribing trends for the treatment of heart failure with reduced ejection fraction at BMPG clinics. Reports generated from large third-party Medicare Advantage payors were used to screen patients and identify those who have had an ICD-10 diagnosis coded between July 1, 2022 and June 30, 2023 consistent with heart failure with reduced ejection fraction. Charts of identified patients were reviewed to assess GDMT utilization by primary care providers and cardiologists, referencing the 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure, as well as medication use history, and medications prescribed during the study period.

The primary objective of this research was to assess the percentage of BMPG-managed patients prescribed GDMT. The prescribing rate of GDMT by cardiologists will be compared to that of primary care providers to determine whether utilization of GDMT varies between the two specialties.

RESULTS: Of the 329 patients screened, 33 patients met study inclusion criteria. 32 patients were being managed by cardiologists for HFrEF therapy. Of the patients being managed by cardiologists, 16 patients did not meet GDMT. The greatest gaps in care were due to non-prescribing of mineralocorticoid receptor antagonist and sodium-glucose cotransporter 2 inhibitors.

CONCLUSIONS: The data suggests there is an unmet need for the management of heart failure therapy. In our clinics, there is a potential for pharmacist intervention in close monitoring and up-titration of medications, especially for MRAs and SGLT-2 inhibitors.

4:00pm – 4:15pm M **Sex Disparities in Lipid Lowering Therapy Among Patients with Established ASCVD** Athena H

Presenters: Mary McClure

TITLE: Sex Disparities in Lipid Lowering Therapy Among Patients with Established ASCVD

AUTHORS: Mary Eva McClure, Damian Hardison, Toni Darnell, Jonathan Hughes, Joel Marrs

OBJECTIVE: Assess sex disparities in high-intensity statin prescribing for established ASCVD

SELF ASSESSMENT QUESTION: Are there sex disparities in lipid lowering therapy among patients with established clinical ASCVD?

BACKGROUND: The 2018 American College of Cardiology/American Heart Association (ACC/AHA) guidelines for the management of blood cholesterol indicate patients with clinical ASCVD events as requiring high-intensity statin therapy. Despite the clear benefits that statins offer in preventing ASCVD, literature extensively documents that women are frequently undertreated in terms of initiation of statin therapy, receiving appropriate doses, and achieving optimal cholesterol levels as compared to men. This trend could stem from various factors, including provider characteristics, patient perceptions of statin safety and effectiveness, divergent reports of statin side effects, and personal healthcare experiences. Given that statins constitute the foundation of treatment, the limited utilization of this therapeutic category could imply an elevated potential for subsequent ASCVD incidents. It is unknown whether a gender difference on statin therapy exists within our healthcare system.

METHODOLOGY: This is a retrospective cohort study focusing on patients between the ages of 18 and 89 years old with established clinical ASCVD receiving care at clinics in the middle Tennessee area associated with Ascension Saint Thomas Medical Partners between July 31, 2019 and July 31, 2023. International Classification of Diseases (ICD) 10 codes will be utilized to identify patients with clinical ASCVD. Patients will be excluded if they are actively pregnant or breastfeeding, have active liver disease, history of decompensated cirrhosis, or have a history of an allergy or hypersensitivity to statins. The primary endpoint is the comparison of prescribing high intensity statin therapy between men versus women. Secondary endpoints include percentage of cases with specific comorbidities (myocardial infarction, stable or unstable angina, coronary revascularization, stroke, transient ischemic attack, peripheral artery disease), percentage of patients who are statin intolerant/allergy to statins, average of patients' most recent LDL-C of men versus women, and percentage of patients seeing a Nurse Practitioner, Doctor of Osteopathic Medicine, Medical Doctor, Physician Assistant, or Pharmacist.

RESULTS: 318 patients were included in the analysis, 197 patients were male and 121 patients were female. The average age in the male group was 69.3 years and 67.0 years in the female group. The baseline characertisics illustrated a statisically significant difference included transient ischemic attack and coronary revascularization. The most common clinical ASCVD was coronary revascularization at 44.7% of males and 32.2% of females. About 43% of patients included in the analysis had diabetes mellitus. For the primary endpoint, 57.2% of males vs. 51.2% of females (P=0.2998) were prescribed a high intensity statin based upon gender. For patients who were prescribed any statin, regardless of dose, based on gender, 92.3% of males vs 84.3% of females (P=0.026). The median LDL-c in the male group was 75 mg/dL vs. 83 mg/dL in the female group (P=0.5029). Most prescribers who initiated statin therapy were medical doctors (72.1%) and were specialized in family medicine (50.9%).

CONCLUSIONS: This study does not show a statistically significant difference in prescription rate of high intensity statin thearpy based on gender, but did illustrate a statisically significant different in prescription rate of any statin not related to intensity.

4:00pm – 4:15pm C **Assessing vasopressor requirements in patients receiving IV calcium salts post-cardiac surgery** Parthenon 2

Presenters: Chandler Allen

TITLE: Assessing vasopressor requirements in patients receiving IV calcium salts post-cardiac surgery

AUTHORS: Chandler Allen, Sara Anne Meyer, Andrew Papoy, Carley Yawn, Ali Fakih

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Few studies have quantified the use of calcium salts and the impact on vasopressor and inotropic support post cardiac surgery, with no explicit guidance for its use post operatively. This study aimed to determine whether intravenous calcium salt administration (calcium gluconate or calcium chloride) reduced total vasopressor requirements and duration of use at our institution.

METHODOLOGY: In this retrospective, observational analysis, we evaluated adult patients who were over the age of 18 years old and received vasopressor support post cardiac surgery. Patients were excluded if they were cannulated for veno-aterial extracorporeal membrane oxygenation, implanted with either an intra-aortic balloon pump or Impella device, had end-stage renal disease requiring hemodialysis prior to admission, and those who received a one-time dose of calcium or 1000 mg or less IV calcium chloride or calcium gluconate in 24 hours. The primary outcome of this investigation was evaluating vasopressor requirements using norepinephrine equivalents (NE) in patients who received calcium salts within 72 hours of surgery versus those who did not. Secondary outcomes included length of stay (defined by days of ICU admission), acute kidney injury requiring renal replacement therapy initiation (RRT), and mortality (defined by death in an ICU). Type of surgery, left ventricular ejection fraction (LVEF), vasoactive-inotropic score (VIS), serum calcium concentrations (using corrected calcium with albumin), ionized calcium levels if available, inotropic therapy use and duration, calcium salt utilized (chloride or gluconate) with total dose (milligrams) and compared based on mode of administration, heart failure class, and The Society of Thoracic Surgeons risk score (STS) were also assessed.

RESULTS: Out of all patients screened, 41 patients met inclusion criteria and were included for analysis; 19 received vasopressors, and 22 received vasopressors and a calcium salt. Baseline demographics were similar between groups. Those who received vasopressors without calcium had lower norepinephrine equivalents requirements than those who received calcium (p=0.039). The vasopressor and calcium group had a lower LVEF than the vasopressor-only group (50% vs 60%; p=0.031). Those who underwent a CABG were more likely to have increased norepinephrine equivalents (95% CI, -0.085 to -.003; p=0.037) compared to other cardiac surgeries. The combination group had NE of more than or equal to 0.05 mcg/kg/min more frequently than the vasopressor group (OR 13.632; 95% CI 1.151 to 161.400; p=0.038). Out of the 22 patients in the combination group, 17 received IV push calcium chloride, with a total average dose of 1500 mg. The use of specific calcium salts on vasopressor requirements could not be assessed due to the limited patient size and no patients required the initiation of RRT. No statistically significant differences were found between the two groups regarding VIS score, length of stay, mortality, serum calcium concentrations, ionized calcium levels, along with length of vasopressors and inotropes.

CONCLUSIONS: At our institution, a statistical difference was found in the amount of vasopressors required by patients who underwent cardiac surgery and received a calcium salt with vasopressors. Although more vasopressors were required in the combination group, there was no significant difference in mortality. Despite requiring higher doses of vasopressors in the combination group, there was no significant difference in the length of vasopressor use between the groups. Patients in the combination group also had lower LVEF which could have affected vasopressor requirements. Larger trials are needed to determine if calcium utilization may shorten duration of vasopressor use post cardiac surgery.

4:00pm – 4:15pm N **Dupixent Utilization in a Community Based Specialty Pharmacy – A Retrospective Chart Review** Athena I

Presenters: Caleigh Smith

TITLE: Dupixent Utilization in a Community Based Specialty Pharmacy – A Retrospective Chart Review

AUTHORS: Caleigh Smith, Courtney Gamston, Kimberly Braxton Lloyd

OBJECTIVES:
Determine the impact of specialty pharmacy utilization on Dupixent utilization rates.
Characterize patients who received insurance coverage of Dupixent and patients for whom coverage was denied.
Compare therapies that were tried and failed before initiation of Dupixent.

SELF ASSESSMENT QUESTION:
[True/False] In the population at Star Specialty Care, patients enrolled in Medicare or Medicaid were more likely to receive insurance coverage approval for Dupixent than those enrolled in commercial plans.

BACKGROUND: Atopic dermatitis is one of the most common dermatologic conditions worldwide, with one study finding that 7.5% of adults in the United States are affected. Topical and oral medications are used for treatment but often fall short of providing significant symptom relief, especially in those who experience severe symptoms. Dupixent (dupilumab), a monoclonal antibody indicated for the treatment of atopic dermatitis, is an increasingly popular option for treatment in patients who have not seen optimal results using alternative therapies. Unfortunately, the high cost associated with initiating and maintaining therapy with monoclonal antibodies such as dupilumab is a significant barrier to treatment. A study conducted in a tertiary medical center found that more than one-third of patients prescribed Dupixent never started therapy due to insurance denial or high copay. Star Specialty Care is a community-based specialty pharmacy that works closely with prescribers throughout the prior authorization process to obtain financial assistance for patients. This study was designed to evaluate the impact of specialty pharmacy utilization on Dupixent utilization.

METHODOLOGY: A retrospective chart review of records for patients 18 years of age or older with moderate to severe atopic dermatitis presenting to Star Specialty Care with a prescription for Dupixent was conducted. Data collected included age, sex, affected body surface area, previously failed therapy(ies), Investigator's Static Global Assessment score insurance provider type, and insurance coverage. Descriptive statistics were used to report population demographics and rates of insurance approval and therapy initiation. A two-group comparison consisting of those who received approval for insurance coverage versus those denied was used to identify differences in population characteristics using Pearson c2 tests. Findings were compared to previously reported data to determine the similarities in the rate of therapy initiation, insurance denials, and population characteristics.

RESULTS: Sixty-five patients presented prescriptions for Dupixent between October 18, 2022, and October 18, 2023. Of those, 40% (n=24) were male and 60% (n=41) were female, with an average age of 52 ± 23 years. Eleven percent of patients (n=7) were denied insurance coverage, and 89% (n=58) were approved for coverage. Of those who received approval, 55% were enrolled in Medicare plans, 33% in Medicaid, and 12% (n=7) in commercial insurance. Patients had an average 20.6 ± 19.1% affected body surface area and 3.6 ± 0.7 Investigator's Static Global Assessment score, indicating moderate to severe atopic dermatitis. An average of 3.7 therapeutic options were failed in patients who received coverage, and an average of 3 were failed in those who

were denied (p=0.022), but there was no difference in the agents used (p=0.42). There was a significant difference between groups in insurance provider (p=<0.001) and biological sex (p=0.04). Patients received approval for coverage at a rate of 89% in comparison to the 63% approval rate found in previous studies. Additionally, while a previous study found that patients on Medicare were less likely to receive treatment (45% approval) than those with commercial insurance (67% approval; p=0.027), this study found that patients with Medicare were more likely to be approved (100% approval) than those with commercial insurance (50% approved; p<0.001).

CONCLUSIONS: Patients who received care at Star Specialty Care had a higher rate of insurance approval than previously reported from a tertiary medical center. Utilization of community-based specialty pharmacies may improve Dupixent access and utilization among patients with atopic dermatitis. There is need for further studies to determine if this impact is specific to this drug-disease state combination or common to the use of community-based specialty pharmacies.

4:00pm – 4:15pm R **Evaluation of Mechanical Ventilation Duration Post Fentanyl Bolus Panel Implementation** Parthenon 1

Presenters: Olivia Whitworth

TITLE: Evaluation of Mechanical Ventilation Duration Post Fentanyl Bolus Panel Implementation

AUTHORS: Olivia Whitworth, Brittany NeSmith, Rachel Langenderfer, Taylor Servais, Mark Elizalde, Kyle Adkins

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Analgesia and sedation are cornerstones of therapy for intubated patients in the ICU. The 2018 PADIS guidelines suggest the use of a protocol-based, stepwise approach to manage pain and sedation in adult ICU patients.

Fentanyl is commonly utilized for analgosedation in the ICU due to its favorable pharmacokinetic properties. When administered intravenously, it has a quick onset of action, allowing a bolus dose to quickly address acute pain or prevent pain with anticipated procedures. Bolus doses can potentially minimize overall opioid requirements and associated adverse effects such as excessive sedation. Therefore, it is important to use fentanyl bolus doses in addition to a fentanyl continuous infusion to adequately address pain and sedation.

An MUE was completed at Bon Secours St. Francis Downtown Hospital in March 2023 to evaluate our analgosedation processes. Results from the MUE of 50 intubated patients revealed 95 up-titrations of fentanyl infusions with only two bolus doses prior to titration. The MUE led to the implementation of our current fentanyl bolus from bag protocol. According to the protocol, the patient must receive at least two 50 mcg boluses of fentanyl prior to increasing the fentanyl continuous infusion rate. The purpose of this study is to assess the duration of mechanical ventilation in adult ICU patients before and after protocol implementation.

METHODOLOGY: This retrospective study will be conducted at Bon Secours St. Francis Downtown in Greenville, South Carolina. Adult, mechanically ventilated ICU patients requiring administration of fentanyl continuous infusion for greater than 24 hours will be included in the study. An additional inclusion criteria of bolus-from-bag panel utilization will be required for patients in the post-implementation group. Individuals less than 18 years old, requiring chemical paralysis, diagnosis of COVID-19 or acute respiratory distress syndrome, tracheostomy tube requirement, or intubation twice within the same encounter will be excluded from the study. The primary outcome will be duration of mechanical ventilation. Secondary outcomes will include opioid consumption, sedative consumption, time in goal Richmond Agitation Sedation Scale (RASS) or Critical-Care Pain Observation Tool (CPOT) range, and ICU length of stay. Outcomes will be compared across two groups: pre-bolus from bag panel implementation group (October 2022-April 2023) and post-bolus from bag panel implementation group (April 2023-November 2023) with the goal of including 100 patients per group. Statistical tests will be used to analyze the collected data. Independent t-tests will be used for all continuous variables. A 95% confidence interval will be used, and a p-value of less than 0.05 will indicate statistical significance.

RESULTS: In progress

CONCLUSIONS: In progress

4:00pm – 4:15pm R **Evaluation of vasopressin response in obese and non-obese adult patients with septic shock** Olympia 2

Presenters: Morgan Knight

TITLE: Evaluation of vasopressin response in obese and non-obese adult patients with septic shock

AUTHORS: J. Morgan Knight, Mary Massaro, Robert Bevins, Cody Seward, A. Shaun Rowe, Shauna Winters

OBJECTIVE: Evaluate blood pressure in various BMIs of patients admitted to an ICU with septic shock

SELF ASSESSMENT QUESTION: Pt requires pressure support. What strategy is best given the results of this study?

BACKGROUND: Vasopressin is an adjunctive agent for patients with septic shock unable to achieve goal mean arterial pressure (MAP) with fluids and initial catecholamine vasopressor. However, its use in the ideal patient population has not been identified, specifically regarding varying body mass indices (BMIs).

METHODOLOGY: This study was approved by the Institutional Review Board and was a single site, retrospective review of adult patients from three different weight ranges based on BMI: Group One, BMI less than 30 kg/m2, Group Two, BMI between 30-39.99 kg/m2, and Group Three, BMI greater than 40 kg/m2. We completed a total screening of 354 patients. Those included were adults greater than or equal to 18 years of age, admitted to the ICU and received AVP as adjunctive therapy to a catecholamine vasopressor for septic shock. Patients were excluded if they were transferred from an outside health care facility already receiving one or more vasopressors, did not have a documented initial diagnosis of septic shock, were deceased prior to receiving 24 hours of AVP, or were not admitted to the ICU. The primary outcome was AVP responsiveness at first blood pressure check after initiation of AVP. Responsiveness was defined as an increase in MAP of greater than or equal to 10 mmHg or the ability to decrease concurrent catecholamine vasopressor doses by 20% or more. Secondary outcomes included hospital length of stay, ICU length of stay, and in-hospital mortality.

RESULTS: Of the 354 patients screened, 101 met study criteria; 60 patients in Group One (BMI less than 30 kg/m2), 22 patients in Group Two (BMI between 30-39.99 kg/m2), and 19 patients in Group Three (BMI greater than 40 kg/m2) were analyzed. The primary outcome of AVP responsiveness was achieved in 31.67%, 22.73% and 31.58% of each group, respectively, with a p-value of 0.7205.

CONCLUSIONS: There was no observed difference in blood pressure response when using fixed-dose AVP compared between the three groups based on BMI.

4:00pm – 4:15pm R **Utilization of Potassium Binders for the Management of Acute Hyperkalemia** Olympia 1

Presenters: Maria Calvert

TITLE: Utilization of Potassium Binders for the Management of Acute Hyperkalemia

AUTHORS: Maria Calvert, Mickala Thompson

BACKGROUND: Severe hyperkalemia is an independent predictor of increased mortality and is associated with increased length of stay (LOS), healthcare costs, and 30-day hospital readmission rates, compared to normokalemia. The rapidity of potassium lowering by oral potassium binders, in addition to standard potassium-lowering therapies (e.g., IV calcium, IV insulin, albuterol, sodium bicarbonate, loop diuretic) has not been fully elucidated. The purpose of this study is to evaluate the short-term potassium-lowering effects of the addition of potassium binders to standard acute hyperkalemia treatment.

METHODOLOGY: A retrospective, IRB-approved chart review was conducted to evaluate patients who received acute hyperkalemia treatment between May 1, 2023 and July 31, 2023. Eligible subjects included non-pregnant patients 18 years or older who presented to Huntsville Hospital with a potassium level of 5.3 mmol/L or greater. Patients were excluded if they: had a diagnosis of diabetic ketoacidosis (DKA) or received an insulin infusion, had a history of end-stage kidney disease (ESKD) or need for kidney replacement therapy (KRT) within 6 hours of hyperkalemia onset, received a potassium binder within 24 hours prior to hyperkalemia onset, received a potassium binder greater than 2 hours after standard treatment, or lacked a follow-up potassium level within 6 hours of receiving treatment. Data collected from the electronic health record (EHR) included: patient demographics, medications known to contribute to hyperkalemia, potassium binder dosing and timing, other potassium-lowering therapies administered, length of stay, adverse events, and relevant laboratory values. Data was analyzed using descriptive statistics.

RESULTS: A total of 125 patients were included in the study: 66 in the “standard treatment” (ST) group and 59 in the “standard treatment plus potassium binder” (STB) group. At baseline, STB had a higher median weight of 88 kg, higher median serum creatinine (SCr) of 1.7 mg/dL, and a higher percentage of patients in the ICU (23.7%). Other baseline characteristics were similar between groups. STB had a 13.1% reduction in serum potassium at 0.5 to 2 hours and 9.8% reduction at > 2 to 6 hours compared to ST at 16.7% and 13.3% respectively. STB had a higher median ICU LOS of 3.5 days and total LOS of 7 days. There were 2 (3%) reports of hypokalemia in ST and no reported cases in STB. Additionally, there was a slightly higher all-cause mortality rate in STB (18.6%) compared to ST (16.7%).

CONCLUSIONS: Potassium binders, when added to standard of care for acute hyperkalemia, did not provide a greater reduction in serum potassium levels compared to standard treatment alone. Sodium polystyrene sulfonate (SPS) made up 56% of the potassium binders in STB, which is a limitation of this study. Furthermore, patients receiving potassium binders may have had a higher severity of illness. Overall, a larger sample size of patients receiving potassium binders, specifically sodium zirconium cyclosilicate (SZC) and patiromer, for acute hyperkalemia treatment will further evaluate clinical utility and effectiveness in this setting.

4:00pm – 4:15pm F **Characteristics of Antimicrobial-Related Medication Safety Incidents** Athena D

Presenters: Maggie Goode

TITLE: Characteristics of Antimicrobial-Related Medication Safety Incidents

AUTHORS: Maggie Goode, PharmD; Chris Whitman, PharmD; Rachel Larry, PharmD; Rodah Wangondu, PharmD

OBJECTIVE: To describe antimicrobial related MEs to identify opportunities for improvement in antimicrobial use

SELF ASSESSMENT QUESTION: During what phase of the medication use process can medication errors occur?

BACKGROUND: Medication errors are common in U.S. hospitals, and patient safety incident reporting is an important quality improvement measure to avoid future patient risk. Antimicrobials are some of the most widely prescribed medications and are commonly implicated. The purpose of this study was to describe antimicrobial related medications errors (MEs) reported across Infirmary Health to identify opportunities for improvement in antimicrobial use. Our primary goal was to identify key steps, error types, and antimicrobials involved in MEs across the healthcare system. The results of this study will be utilized to identify areas of improvement and decrease the likelihood of such errors.

METHODOLOGY: This is a retrospective, multisite, chart review conducted across a large community healthcare system. Data for all medication related safety events (MEs) from January 1, 2022 to July 23, 2023 was extracted from Infirmary Health System's error reporting system. Non-antimicrobial related MEs, with the exception of immunizations, were excluded. Medication events from the remaining safety reports including antimicrobials were evaluated. Medication error information was collected including patient demographics, patient location at the time of medication error, stage of medication error, type of error, level of patient harm, antimicrobials involved, contributing factors to the incident, and reporting user title job role. The data was then analyzed to identify the most prevalent antibiotics associated with medication errors, identify why these errors occurred, and how the health system can improve to prioritize patient care.

RESULTS: There were 3,725 medication safety incidents between January 2022 through July 2023. The median age of patients was 65 years old. Of those 3,725 events, 608 (16%) were antimicrobial related. Antibiotics accounted for 90% (n=542) of the antimicrobial errors. Vancomycin was the most frequent antimicrobial associated with the medication errors (31%, n=188), followed by ceftriaxone (11%, n= 64) and piperacillin/ tazobactam (9%, n=57). Intravenous (IV) was the most frequent route associated with MEs at 82% (n=497). Medication errors most commonly occurred during the ordering phase (53%, n=318), followed by administration phase at (24%, n=146). The most common medication error classification was "category B, med did not reach the patient, near miss" (37%, n=226).

CONCLUSIONS: Antimicrobials account for a large portion of medication safety incidents. The majority of antimicrobial medication errors were related to medication ordering followed by medication administration. The increased incidence of vancomycin related medication errors is an area of concern. The results of this study will be utilized as a quality improvement initiative to assist the medication safety team and antimicrobial stewardship program to minimize unnecessary medication errors.

4:00pm – 4:15pm T **How does the Loop Diuretic Dose in Acute Decompensated Heart Failure Affect Time to Decongestion?** Athena B

Presenters: Gregory Taylor

TITLE: How does the Loop Diuretic Dose in Acute Decompensated Heart Failure Affect Time to Decongestion?

AUTHORS: Greg Taylor, Jessica Starr, Nathan Pinner

OBJECTIVE: Recall if higher doses are more effective for decongestion in patients with ADHF.

SELF ASSESSMENT QUESTION: Were higher doses of loop diuretics associated with lower time to decongestion?

BACKGROUND: Loop diuretics are the mainstay of therapy for the acutely congested patient with heart failure. There is currently a lack of evidence on the optimal dosing strategy in cases of acute decompensated heart failure (ADHF). There is not a consensus statement on what initial dosing should look like other than a suggested range of 1-2.5 times the patient's home dose of loop diuretic. Whether higher initial doses of IV loop diuretics can help reduce time to decongestion in ADHF and remain safe is unknown. The purpose of this study is to evaluate how the initial IV loop diuretic dosing strategy implemented affects time to decongestion.

METHODOLOGY: This will be a retrospective cohort of patients admitted with the diagnosis code of ADHF. Patients will be separated into groups based on receipt of greater than or equal to 2.5 times their home loop diuretic dose. Inclusion criteria include patients greater than 18 years of age, with an admitting diagnosis of acute decompensated heart failure, who receive of an IV loop diuretic, and are on loop diuretic therapy at home. Exclusion criteria include use of IV diuretics for any indication other than ADHF, receipt of IV vasodilators, receipt of inotropes or vasopressors, cirrhosis with ascites, baseline ESRD on dialysis, receipt of renal replacement therapy or ultrafiltration concurrently with diuretic strategies, and pregnancy status. The primary outcome will be time until hospital discharge or switch to oral loop diuretics (whichever is earliest). Secondary outcomes include linear regression between intensity of initial diuresis and time to decongestion, need for diuretic intensification, time to diuretic intensification, hospital length of stay (LOS), ICU LOS, in-hospital mortality, rates of acute kidney injury (AKI) (increase in SCr 0.3 mg/dL or greater within 48 hr), readmission within 30 days for ADHF, readmission within 60 days for ADHF. Nominal data will be analyzed using a chi-squared test. Continuous data will be analyzed with a student t-test or Wilcoxon rank sum if parametric or non-parametric.

RESULTS: 114 patients were included with 74 patients in the high dose group and 40 patients in the low dose group. For the primary outcome of time to decongestion, there was not a statistically significant difference between the high dose and the low dose group (mediain 3.88 days vs 4.25 days) (p-value = 0.4423). Linear regression was performed to analyze the assoication between dose received as a factor of home dose and time to decongestion and there was no association found (R-squared = 0.0002). A similar analysis was performed to compare total dose received with time to decongestion and there was not an association noted (R-squared = 0.02014). There was a statistically significant difference in need for diuretic intensification beyond 24 hours for the high dose group vs the low dose group (6 events [8%] vs (20 events [50%]) (p = 0.0001). There was a numerically higher rate of AKI in the high dose group, but this was not a statistically significant difference (25 events [33.7%] vs 11 events [27.5%]) (p=0.5332). There were no statistically signiferent differences between hospital LOS or readmission rates of 30 days and 60 days between both groups.

CONCLUSIONS: Higher initial doses of loop diuretics did not lead to a more rapid time to decongestion. The high dose group did require less diuretic intensification beyond 24 hours, but this was not associated with a shorter hospital LOS.

4:00pm – 4:15pm A **Implementation of a Transitions of Care Pharmacist at a Rural Community Teaching Hospital** Athena J

Presenters: Samantha Salas

TITLE: Implementation of a Transitions of Care Pharmacist at a Rural Community Teaching Hospital

AUTHORS: Samantha Salas, Christine Hunter

OBJECTIVE: To show the value of a transitions of care pharmacist and improve the continuum of care for patients as medication regimens are optimized

SELF ASSESSMENT QUESTION: What is one of the high-risk medication categories associated with potential negative outcomes during a patient's transition of care?

A.Antimicrobials B.Anticoagulants C.Insulin D.All the above

BACKGROUND: Pharmacists play a vital role in optimizing medication regimens during transitions of care and can improve medication adherence, prevent readmissions, and decrease medication errors. Transitions of care pharmacists are recommended by many governing bodies of pharmacy and are commonly seen in large health systems. Despite this support, transitions of care services in rural settings are often insufficient. Over 30% of patients may experience errors in medication management at discharge, according to Kreckman and colleagues. The transition of care between hospitals and primary care settings is one of the highest risk areas for patient safety and optimization of care, especially in patients with chronic conditions. Recently, additional emphasis is placed on measuring effective transitions of care with patient-centered outcomes such as days at home, functional status, and patient experience.

METHODOLOGY: This is a single-center, retrospective study conducted over an eight-week period. Medication regimens were assessed to determine how many interventions pharmacists made to patients' medications during transitions of care. Patients were included if they were discharged from a single medical-surgical unit at a rural hospital and were admitted for at least 48 hours. Targeted patients had at least five medications on their discharge medication list related to heart failure, diabetes, high risk medications, and/or antibiotics. The primary endpoint was the average number of medication interventions a pharmacist completed during a patient's transition of care. Secondary endpoints included reduction of high-risk medication errors and percentage of discharge medication reconciliations which resulted in optimized therapy.

RESULTS: A total number of 79 patients were included in the study and there were 572 interventions overall. There were outliers on either side with one patient requiring 32 interventions to their medication list, and 10 patients not requiring any interventions to their medication regimens. The primary outcome was an average of 7.37 interventions to medication regimens with a median number of 5 interventions. Seven percent (42/572) of interventions were related to the reduction of high-risk medication errors and five percent (30/572) of interventions resulted in recommendations towards optimized therapy. Patients with diabetes and patients with diabetes and heart failure concomitantly required the most interventions to the medication lists. Patients' therapy plans included 19 medications on their prior to admission medication lists and 19 medications on their discharge medication lists. Of the total number of interventions, 261 were in relation to sig clarification addition, including dose, route, frequency, and duration.

CONCLUSIONS: Transitions of care pharmacists play a vital role in multiple aspects of patient care throughout their hospital course. Pharmacists' recommendations provide value by optimizing care and improving patients' quality of life.

4:20pm – 4:35pm M **Assessing Pharmacy-Driven Medication Adherence Outreach in Multiple Health-System Settings** Athena H

Presenters: Stefan Cevallos

TITLE: Assessing Pharmacy-Driven Medication Adherence Outreach in Multiple Health-System Settings

AUTHORS: Stefan Cevallos, Amanda Bonney, Anna Everhart, Angela Kim, Christina Maki

OBJECTIVE: To assess the correlation between pharmacy interventions and changes in medication adherence measures

SELF ASSESSMENT QUESTION: What are factors that could affect adherence measures, such as Medication Adherence for Diabetes? Medication cost, Supply chain shortages, Transportation needs, Side effects, All of the above

BACKGROUND: About 40% to 50% of Americans are considered nonadherent to their medications for chronic conditions. Medication nonadherence is estimated to cause an average of 100,000 deaths per year, and around $100 billion in preventable medical costs annually1 . Given the significance of medication nonadherence, the Centers for Medicare and Medicaid Services (CMS) emphasizes quality metrics focused on medication adherence for diabetes (MAD), hypertension (MAH), and cholesterol (MAC) as measured by proportion of days covered (PDC)2. PDC is the gold standard for measuring medication adherence, which CMS defines adherence as patients that have a PDC ? 80%. These medication adherence quality metrics are triple-weighted in Medicare Advantage value-based contracts, which impact the overall STAR rating and reimbursement to the health-system2 . Pharmacy population health teams have been primarily responsible for medication adherence outreach to patients in Medicare Advantage value-based care contracts, but in October 2022, this work began being distributed to community pharmacy teams within the health system as well. This project aims to evaluate the impact of outreach made by our pharmacy teammates on medication adherence. It will also assess certain patient characteristics associated with higher medication adherence.

METHODOLOGY: This project will be a retrospective cohort study conducted via chart review with a total patient population of 124, 62 from each group - those that received a pharmacy intervention and those that did not . Data will be obtained from the EHR, health payor reports, and medication adherence dashboards. Patients included in this study are those at risk of falling below or having a PDC less than 80% for the target medication classes. They were identified for outreach by the health-system community and population health pharmacy teams between April 2023 and December 2023. A random number generator was used to identify a sample of patients from those who have received pharmacy outreach. The primary outcome is the proportion of target prescriptions meeting adherence criteria (PDC ? 80%). Secondary outcomes include proportion of prescriptions meeting adherence criteria for each individual measure, types of interventions made by pharmacy teammates, patient demographics and characteristics, health equity data (food insecurity, transportation needs, living situation, etc.), type of pharmacy used to fill prescription, and type of pharmacy teammate completing outreach and intervention. Results will be analyzed using linear regression to determine the odds of meeting medication adherence goals after receiving an intervention from health system pharmacy teammates. Secondary outcomes will be evaluated using descriptive statistics and a univariate logistic regression model.

RESULTS: Of the 124 patients, there were a total of 80 qualifying medications for the yes intervention compared to 89 from no intervention. The change in number of prescriptions meeting adherence criteria was -2.5% in the no group, and 1.1% in the yes group. The incidence rate ratio (IRR) was 0.702 (95% CI, 0.38-1.30, p=0.26), meaning statistical significance was not achieved. Seconday outcomes for each measure include: MAH 0.90 (0.46-1.68, p=0.74), MAC 1.38 (0.72-2.71, p=0.34), and MAD 1.15 (0.44-3.17, p=0.78). Our most common interventions seen include initiated refill, requested new prescription, medication educaiton, and provider recommendations.

CONCLUSIONS: Although we failed to see statistical significance, a positive impact was seen with an upward

trend in prescriptiions meeting adherence criteria in the MAC and MAH groups. Further analysis on the secondary outcomes is needed, such as zip code and social determinants of health data, which chould lead to more targeted outreach in the future.

4:20pm – 4:35pm F **Implementation of MRSA Nasal PCR Swabs in Pediatric Patients** Athena C

Presenters: Hannah Bischoff

TITLE: Implementation of MRSA Nasal PCR Swabs in Pediatric Patients

AUTHORS: Heather Hughes, Beth Addington, Hannah Bischoff, etc.

OBJECTIVE: Encourage MRSA nasal PCR swabs use in pediatric patients to guide de-escalation of Anti-MRSA agents.

SELF ASSESSMENT QUESTION:

BACKGROUND: Often, treatment of pediatric patients is based on both adult and pediatric literature. The current adult Infectious Disease Society of America and the American Thoracic Society guidelines for community-, hospital-, and ventilator-acquired pneumonia mention use of nasal screening for de-escalation of anti-methicillin resistant staphylococcus aureus (MRSA) antibiotics.1-2 MRSA nasal PCR swabs have about a 96% negative predictive value for treatment of community-acquired pneumonia, hospital-acquired pneumonia, and ventilator-associated pneumonia.3 In Mergenhagen KA, et al., MRSA nasal PCR swabs demonstrated a negative predictive values of 96%, 98.6%, 93.1% and 99.2% in bloodstream and respiratory, intrabdominal, wound, and urinary infections, respectively, allowing for de-escalation of anti-MRSA agents. Although these studies take place in adult patients raises the questions of transferability to the pediatric patient population. In a single-center retrospective analysis of 95 pediatric patients, MRSA nasal PCR swabs showed a negative predictive value of 95.5% in multiple different types of infections.5

METHODOLOGY: A single-center, pre- and post-interventional, retrospective cohort study comparing antibiotic regimens in pediatric patients who were treated empirically with an anti-MRSA agent that did not receive a MRSA nasal PCR swab to patients that received a MRSA nasal PCR swab. Use of MRSA nasal PCR in the pediatric hospital was encouraged following an antimicrobial stewardship provider lead continuing education presentation. The primary outcome is the number of days each patient received anti-MRSA antibiotics.

RESULTS: The duration of MRSA coverage in the pre-intervention group was 6.66 days compared to the post-intervention group at 2.00 days (p-value of 0.027). A negative predictive value was calculated by using 38 patient with appropriate cultures for the diagnosis and was 92.10%. Skin and soft tissue infections and pneumonia were found to have negative predicive values of 90.10% (22 patients) and 100% (5 patients), respectively.

CONCLUSIONS: Implementation of MRSA nasal PCRs swab in pedicatric patients significantly reduced the number of days patients recieved anti-MRSA coverage promoting antimicrobial stewardship.

4:20pm – 4:35pm T **Direct Oral Anticoagulants In Acute Kidney Injury and the Incidence of Major Bleeding** Athena B

Presenters: Kyle Furlow

TITLE: Direct Oral Anticoagulants In Acute Kidney Injury and the Incidence of Major Bleeding

AUTHORS: K. Furlow; M. Gaddh; A. Vadde; A. Crider; H. Leschorn; N. Metzger; A. Van Prooyen; C. Callahan

OBJECTIVE: Evaluate the safety of using DOAC therapy in AKI and the incidence of bleeding

SELF ASSESSMENT QUESTION: Based on preliminary findings what is the current practice of managing DOAC therapy if AKI develops?

BACKGROUND: Acute kidney injury (AKI) creates challenges and safety concerns when using direct oral anticoagulants (DOACs). Previous studies have mixed results and are limited by small sample sizes, use of non-standardized anti-Xa monitoring, and they primarily evaluated apixaban. This study will compare major bleeding for patients treated with DOACs who developed AKI to those without AKI.

METHODOLOGY: This is a multi-center, retrospective cohort study to evaluate the safety of DOACs (apixaban, rivaroxaban, dabigatran) in hospitalized patients with AKI. Adult patients hospitalized from October 1st, 2022 to September 1st, 2023 who received a DOAC for at least 48 hours or those who had a DOAC listed on their home medication list will be included. Patients admitted to the intensive care unit, who received dialysis, were missing a baseline serum creatinine, or were pregnant will be excluded. Patients who had AKI (defined by ICD-10 codes) will be compared to patients who did not have AKI. The primary endpoint is major bleeding defined by ICD-10 codes. Secondary endpoints include hospital length of stay, hospital mortality, fatal bleeding, quantity of packed red blood cells received, 7-day and 30-day all-cause readmissions, and total decrease in amount (g/dL) of hemoglobin from baseline.

RESULTS: Our data is preliminary and still on-going due to unforseen circumsrtances delaying our compelte data analysis. We have included 33 patients in the DOAC with AKI group. Patient demographics on average were 72 years of age, more than half were female (n=21, 63.6%), and primarily African Americans represented (n=26, 78.8%). Apixaban was primarily the DOAC utilized (n=30, 96.8%) among patients usually for stroke prevention in nonvalvular atrial fibrillation. Among the study population so far 1 (3.0%) patient had an episode of major bleeding meeting our primary endpoint. We identified a median length of stay of 8 days [4-11] and no hospital mortality or fatal bleeding so far among our initial data. We have identified a 7-day readmission rate of 12.1% and a 30-day readmission rate of 33.3% with a total decrease of hemoglobin from baseline of 2.4 (±1.6) g/dL.

CONCLUSIONS: While these results are descriptive in nature and only represent a small population at Emory Healthcare ongoing efforts will be made to complete the project with a control group to compare results with the current cohort. Further research will still be needed to evaluate the safety of DOACs in patients who develop AKI in a larger randomized study to evaluate if results are statistically significant and if that correlates to clinical significance.

4:20pm – 4:35pm 1 **CANCELED Impact of Cytomegalovirus on Cardiac Allograft Vasculopathy and Rejection in Heart Transplant** Athena I

Presenters: Kat Petersen

TITLE: Impact of Cytomegalovirus on Cardiac Allograft Vasculopathy and Rejection in Heart Transplant

AUTHORS: Kat Petersen, Brett Rollins, Heather Snyder

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Previous studies have suggested that cytomegalovirus (CMV) infection in heart transplant recipients can increase the risk of antibody mediated rejection (AMR) and cardiac allograft vasculopathy (CAV), a form of coronary atherosclerosis that leads to narrowing of coronary arteries. Despite these associated risks, strategies to prevent CMV disease are not yet standardized. The purpose of this study is to evaluate the impact of CMV infection on CAV, rejection, and survival outcomes after heart transplant as well as the utilization of pharmacological prophylactic regimens targeting CMV in this population.

METHODOLOGY: This is an Institutional Review Board-approved, single-center retrospective chart review of patients that underwent heart transplant or simultaneous heart and kidney transplant from June 1, 2013 - June 1, 2023 at Emory University Hospital. Patients were excluded if they were younger than 18 years old at the time of transplant. Patients were analyzed in three study arms: those with negative CMV polymerase chain reaction (PCR), clinically relevant CMV disease, and positive CMV PCR without clinically relevant disease. Clinically relevant disease was defined as CMV symptoms or CMV PCR 1000 IU/mL or greater. Based on institution-specific protocol patients at high risk for CMV received valganciclovir prophylaxis and those at intermediate or low risk received valacyclovir prophylaxis for 90 days after transplant. The primary outcome was the association between CMV and CAV or rejection (acute cellular rejection [ACR] or AMR). Secondary outcomes include incidence of positive CMV PCR based on prophylactic regimens, incidence of CAV, rejection, and patient and graft survival.

RESULTS: The first year of ten planned years of data collection has been completed. A total of 62 heart transplant patients were included in this analysis. Of these patients, the median age was 55 years and the cohort was composed of 15 (24%) females. Most (98%) patients received a tacrolimus-based maintenance immunosuppression regimen. Eleven (18%) patients were low risk for CMV, 41 (66%) were intermediate risk, and ten (16%) were high risk. There were 28 patients (45%) in the negative CMV PCR group, 17 patients (27%) in the positive CMV PCR without clinically relevant disease group, and 17 patients (27%) in the clinically relevant disease group. The median time to positive CMV PCR from transplant in patients with clinically relevant infection was 25 days. Overall, 24 (39%) patients experienced ACR, grade 2R or greater, and 4 (6%) patients had AMR. No patients experienced CAV during the one-year follow-up period. ACR occurred most frequently in the positive CMV PCR without clinically relevant disease group (59%) and clinically relevant disease groups (36%), although not statistically significant between the three groups (p=0.12). No statistically significant differences among CMV study arms were identified for AMR, graft failure, or patient mortality. Patients at intermediate risk for CMV on valacyclovir prophylaxis had a significantly higher rate of positive CMV PCRs (76%) as compared to those at high and low risk (p- values less than 0.001).

CONCLUSIONS: Heart transplant patients in this study experienced a numerically higher rate of cellular rejection if they had CMV viremia with or without clinically relevant disease. Patients at intermediate risk for CMV had significantly higher rates of positive CMV PCRs and may benefit from prophylaxis with valganciclovir. Larger sample sizes and longer follow-up periods are needed to determine the association between CMV infection and heart transplant outcomes including CAV, AMR, and survival.

4:20pm – 4:35pm M **Pharmacist-led Interventions on Adherence to Standards of Care in HIV PrEP Prescribing and Monitoring** Athena G

Presenters: Danielle Althouse

TITLE: Pharmacist-led Intervention on Adherence to Standards of Care in HIV PrEP Prescribing and Monitoring
AUTHORS: D. Althouse, T. Jagel, T. Savoie, K. White
OBJECTIVE: Identify a pharmacist's role in increasing adherence to recommended prescribing and monitoring parameters for the most safe and effective use of HIV pre-exposure prophylaxis within a Veterans Affairs health system
SELF ASSESSMENT QUESTION: What are interventions a pharmacist can make in HIV PrEP management?
BACKGROUND: The VA is the single largest provider of care to individuals with HIV in the nation meaning HIV prevention is a priority within the VA. HIV PrEP reduces the risk of HIV infection from sexual transmission by about 99% and from injection drug use by at least 74% but patient monitoring and adherence are essential to effectiveness. The USPHS/CDC Clinical Practice Guideline for Preexposure Prophylaxis for the Prevention of HIV Infection in the United States – 2021 Update provides detailed recommendations regarding HIV PrEP management. The VA utilizes an internal HIV PrEP Management Dashboard to alert the healthcare team to potential interventions for Veterans with PrEP prescriptions. Several areas for improvement were identified in the health system for more frequent laboratory monitoring and follow-up of Veterans with an HIV PrEP prescription. This quality improvement project aims to increase adherence to prescribing and monitoring practices set by the USPHS/CDC Clinical Practice Guideline for Preexposure Prophylaxis for the Prevention of HIV Infection in the United States through pharmacist-led education and interventions to prescribers and Veterans.
METHODOLOGY: Eligible patients are those who have an active prescription for emtricitabine/TAF, emtricitabine/TDF or cabotegravir (injection). Retrospective analysis using the VA HIV PrEP Monitoring Dashboard identified areas for improvement in prescribing practices and laboratory monitoring. Pharmacist-led education occurred throughout the health system during a primary care team and staff training meeting. Veterans with active PrEP prescriptions were called to discuss adherence and monitoring, and inquire if they would like their HIV PrEP care to be transitioned to a designated HIV PrEP clinician for more comprehensive PrEP-related care. After completion of interventions, a second analysis will be completed to evaluate changes to prescribing and monitoring practices.
RESULTS: TBD
CONCLUSIONS: TBD

4:20pm – 4:35pm C **Adherence and Tolerability of Treprostinil DPI in WHO Groups 1 and 3 Pulmonary Hypertension** Parthenon 2

Presenters: Stephanie Roskowski

TITLE: Adherence and Tolerability of Treprostinil DPI in WHO Groups 1 and 3 Pulmonary Hypertension

AUTHORS: Stephanie Roskowski, Lauren Kemp, Lisa Curran, Emma Paytes

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Treprostinil is a treatment for patients with pulmonary hypertension (PH) classified in World Health Organization (WHO) groups 1 and 3. Treprostinil DPI is a drug-device therapy that delivers the dry-powder formulation of Treprostinil as a more convenient method of administration compared to the traditional nebulizer. There is currently no standardized method to assess if patients have tolerated the new formulation of Treprostinil or if compliance has been affected by the new delivery system. The purpose of this study is to evaluate adherence and tolerability of Treprostinil DPI in order to characterize our experience with this treatment in PH patients.

METHODOLOGY: This study is a single center, IRB reviewed and determined exempt, study examining a retrospective cohort. Patients were identified through reports generated from Cone Health's electronic health records and extracted via chart review. The study participants consisted of patients that were followed by physicians at the Advanced Heart Failure Clinic. Patients had a clinical diagnosis of WHO group 1 or 3 PH and were being treated with Treprostinil DPI. The following data was collected: age, sex, ethnicity, race, insurance information, baseline 6-minute walk distance (6MWD), WHO group class, NYHA functional class, time since PH diagnosis, background PH therapy, and baseline B-type natriuretic peptide (BNP). The primary outcome was the proportion of days covered (PDC) at 6 months to assess for adherence where adherence was defined as greater than or equal to 80% PDC. Secondary outcomes measured at follow up included change in BNP, change in 6MWD, Treprostinil dose achieved, target Treprostinil dose achieved, medication access, and time from original prescription sent to the patient receiving the medication. Descriptive statistics were used for adherence, medication assistance, and adverse effects. Wilcoxon signed-rank test to compare changes in BNP and 6MWD.

RESULTS: Within the sample population, 71.4% of patients were found to be adherent to their Treprostinil DPI. All patients encountered some form of barrier to medication access when initiating therapy. The majority (92.9%) of prior authorizations were approved upon submission, and all patients subsequently requiring appeals received approval as well. More than half (57%) of patients required financial assistance from the drug manufacturer. The median time for patients to receive a medication after obtaining a prescription was 36 days. Half of all patients were able to achieve a target dose of 64 mcg. There were no changes in BNP or 6MWD at follow up. Cough and dyspnea were the two most common adverse effects, both with an incidence of 42.9%. One third of patients reduced their dose of Treprostinil; however, only 25% discontinued Treprostinil altogether due to adverse events.

CONCLUSIONS: The majority of PH patients were found to be adherent to their Treprostinil DPI. The pharmacist involved in the patients' care was able to effectively overcome most barriers to medication access through prior authorizations or appeals. Overall, Treprostinil DPI was well tolerated for most patients, but did have instances where patients had to make regimen adjustments to limit adverse effects. Future studies should focus on directly comparing Treprostinil DPI to Treprostinil nebulized solution with a larger sample size to gain further understanding of the role Treprostinil DPI may have in therapy.

4:20pm – 4:35pm R **Evaluation of Acetylcysteine for Acetaminophen Toxicity in the Emergency Department** Olympia 2

Presenters: Raymond Patterson

TITLE: Evaluation of Acetylcysteine for Acetaminophen Toxicity in the Emergency Department

AUTHORS: Jenna Jewett, Raymond A Patterson

OBJECTIVE: Recite the acetylcysteine regimen given to patients who present with acetaminophen overdoses

SELF ASSESSMENT QUESTION: What is the standard regimen of acetylcysteine for patients experiencing acetaminophen overdoses?

BACKGROUND: Acetaminophen toxicity is a frequent cause of emergency department (ED) visits and often necessitates the use of N-acetylcysteine (NAC) to avoid hepatotoxicity. NAC can be given intravenously or orally and is usually administered promptly upon the patient's arrival after the initial labs result. However, research reveals that up to one-third of patients who receive NAC will experience a medication error. Currently, there are no procedures or tools to assist in guiding the dynamic treatment of these patients. This study aims to assess the medication use process of NAC for addressing acetaminophen toxicity in the ED.

METHODOLOGY: This is a retrospective, single-center chart review of 100 patients aged 18 or older hospitalized at Wellstar Kennestone Hospital between January 1, 2022, and May 1, 2023. The information gathered from our drug utilization report will be used to identify patients who received at least one dose of NAC for suspected or confirmed acetaminophen toxicity while in the ED. The Wellstar Research Institute Institutional Review Board approved all information reviewed. The primary endpoint evaluates the proportion of patients who completed the entire recommended course of NAC, without documentation of a significant delay in therapy or missed dose(s). Secondary endpoints include the evaluations of appropriate use, safety, and the adherence rate to recommendations for its use. For proper use assessment, we will evaluate the proportion of patients who experienced significant therapy delays or had at least one missed NAC dose during their prescribed treatment period. To measure safety outcomes, we will evaluate the proportion of patients who had one or more poor prognostic factors at the time of discontinuation of NAC therapy. Recommendations from our local poison control center or our in-house toxicology service will be used to assess the rate of recommendation implementation for each patient.

RESULTS: In progress

CONCLUSIONS: In progress

4:20pm – 4:35pm R **Implementation of an Updated Diabetic Ketoacidosis Order Set in an Emergency Department** Olympia 1

Presenters: Savannah Pratt

TITLE: Implementation of an Updated Diabetic Ketoacidosis Order Set in an Emergency Department

AUTHORS: Savannah Pratt, Holly Clark, and Jeremy Ray

OBJECTIVE: Explain the implementation of an updated DKA order set within an ED. Compare outcomes after order set implementation.

SELF ASSESSMENT QUESTION:What labs should a pharmacist consider when assessing a patient presenting to an ED for possible DKA?

BACKGROUND:

Diabetic ketoacidosis (DKA) constitutes a severe and potentially life-threatening complication arising from diabetes mellitus (DM), commonly observed in emergency departments (EDs). Timely and standardized management is crucial for optimal patient outcomes. Numerous EDs have incorporated a variant of the intensive care unit (ICU) DKA order set. However, a key point of transition occurs when a patient moves from the ED to an ICU – the switch from the ED order set to the ICU order set. Discrepancies between these two order sets may introduce variations in care, posing a potential threat to patient safety and overall health outcomes. This research project is designed to evaluate the introduction of an updated DKA order set within the ED. The order set aims to align more closely with the established ICU order set, thereby minimizing inconsistencies in patient care during the transition from ED to ICU. By conducting this research, we seek to offer valuable insights into the potential benefits of this updated order set, particularly in terms of optimizing resource utilization, reducing treatment variability, and ultimately improving patient outcomes.

METHODOLOGY:

This is a single-center, retrospective, pre-post intervention analysis between February 1 2022 – March 1, 2024. Pre-implementation data was obtained via chart review and was conducted on patients who were 18 years or older and were treated with an insulin drip initiated in the ED. Post-implementation data was collected from patients who received an insulin infusion utilizing the updated ED DKA order set. Data collection for both pre-implementation and post-implementation obtained from the electronic medical record included: patient demographics, laboratory levels such as initial blood glucose, anion gap, beta-hydroxybuterate, and A1C, length of stay, hypoglycemia rates, and rate and length of insulin drip administration. The data collected was evaluated for rates of hypoglycemia, time to anion gap closure, length of ICU stay, time for BG to return less than 250, and amount of insulin bags utilized.

RESULTS:
The study investigated the impact of an implementation intervention on hypoglycemia rates and related outcomes in a cohort of patients. Baseline characteristics were similar between the intervention and control groups, ensuring comparability. The primary endpoint, hypoglycemia defined as a glucose level below 75 mg/dL, exhibited a significant reduction from 21% pre-implementation to 9% post-implementation in the intervention group. Moreover, first-time repeat hypoglycemia events decreased notably from 10% to 2% following the

intervention.Secondary endpoints provided additional insights into the intervention's effects. The number of insulin bags required decreased from 2 pre-implementation to 1 post-implementation. Despite these improvements, ICU length of stay remained unchanged at 2 days. Notably, the time elapsed from drip initiation to long-acting insulin administration decreased substantially from 22 hours and 36 minutes pre-implementation to 18 hours and 12 minutes post-implementation, indicating enhanced efficiency in insulin management protocols. Additionally, anion gap closure time was reduced from 12 hours and 22 minutes pre-implementation to 10 hours and 49 minutes post-implementation, suggesting improved metabolic control and acid-base balance.Overall, the implementation of the intervention was associated with significant reductions in hypoglycemia rates and improvements in various aspects of clinical care related to insulin management and metabolic control. These findings underscore the effectiveness of the intervention in optimizing patient outcomes and healthcare resource utilization in the study population.

CONCLUSIONS:

In conclusion, our study demonstrates the successful implementation of an updated Diabetic Ketoacidosis (DKA) order set within the Emergency Department (ED), aiming to harmonize care practices with those in the Intensive Care Unit (ICU). The transition from the ED to the ICU presents a critical juncture in patient management, where discrepancies in order sets may introduce variability in care. By aligning the ED order set more closely with the established ICU protocols, our intervention seeks to minimize these variations and enhance patient safety and health outcomes.
The results of our analysis indicate significant improvements in hypoglycemia rates and various aspects of clinical care following the implementation of the updated order set. Notably, reductions in hypoglycemia incidence and repeat events underscore the efficacy of the intervention in optimizing glycemic control. Additionally, enhancements in insulin management protocols, as evidenced by decreased time to long-acting insulin administration and anion gap closure, signify improved metabolic control and acid-base balance.
These findings offer valuable insights into the potential benefits of standardized DKA management practices within the ED setting. By optimizing resource utilization, reducing treatment variability, and ultimately improving patient outcomes, our study contributes to the ongoing efforts aimed at enhancing the quality and consistency of care for patients presenting with DKA in the ED.

4:20pm – 4:35pm R **Use of Valproic Acid for Agitation in Acute Traumatic Brain Injury** Parthenon 1

Presenters: Liz Mann

TITLE: Use of Valproic Acid for Agitation in Acute Traumatic Brain Injury

AUTHORS: Liz Mann, Jennifer Beavers, Leanne Atchison, Jeremy Jenkins

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Agitation is reported in 20-41% of patients in the acute care setting following a traumatic brain injury (TBI) and can be detrimental to patients. Several classes of medications have been used, but there are currently no guideline recommendations for the management of agitation following a TBI. Valproic acid (VPA) has demonstrated positive outcomes in studies and case reports, such as reduction of agitation post-TBI, and was recently added to our institution's trauma service's practice management guidelines for management of agitation. The purpose of this study was to determine if agitation decreased after initiation of VPA in patients post-TBI.

METHODOLOGY: A retrospective, single-center, observational, case-control study was conducted evaluating the efficacy of VPA on the reduction of agitation post-TBI. Patients ≥18 years of age with a moderate to severe TBI were included if they had a Richmond Agitation-Sedation Scale (RASS) ≥ +2 at least once prior to VPA initiation and received VPA for agitation for ≥48 hours. Patients were excluded if they were on VPA prior to admission, received VPA for an indication other than agitation, or received a carbapenem while on VPA therapy. The primary outcome was comparison of the incidence of agitation on day 0 and day 7 of VPA therapy, with agitation defined as a RASS ≥ +2 at least once in a calendar day. Secondary outcomes included concurrent antipsychotic, sedative, and opioid use, need for restraints, and incidence of recurrent agitation.

RESULTS: A total of 81 patients were included in the final analysis. The majority of patients were white and male with a median age of 38 years old. Most patients sustained a blunt injury (95.5%) with motor vehicle crash as the most common mechanism of injury. The median GCS and ISS on admission were 3 and 29, respectively. Eighty patients had resolution of agitation within 7 days of initiation of VPA with 49 patients (60.5%) experiencing agitation on day 0 compared to 25 (32.5%) on day 7 (p=0.0004). The mean time to agitation resolution from VPA initiation was 6.38 days. Agitation recurred in 47 patients (59%) with a mean time to recurrence from agitation resolution of 2.8 days. The use of antipsychotics, adjunctive agents for agitation, sedatives, and opioids all decreased from day 0 to day 7. The use of restraints also decreased from 97.5% on day 0 to 66.2% on day 7. There was no hepatotoxicity or hyperammonia seen in our study population. Leukopenia occurred in 9 patients (11%) and thrombocytopenia occurred in 6 patients (7.4%).

CONCLUSIONS: Agitation in patients post-TBI significantly decreased after initiation of VPA. The concomitant use of antipsychotics, sedatives, other adjunctive medications, and opioids decreased as well. Significant adverse effects due to VPA use were not observed.

4:20pm – 4:35pm F **Oral Antibiotic Therapy for the Treatment of Staphylococcus aureus Pneumonia** Athena D

Presenters: Mitchell Thelen

TITLE: Oral Antibiotic Therapy for the Treatment of Staphylococcus aureus Pneumonia

AUTHORS: Mitchell Thelen, Cyle White

OBJECTIVE: To compare the efficacy of oral vs. IV antibiotics in pneumonia caused by Staphylococcus aureus

SELF ASSESSMENT QUESTION:

BACKGROUND: Recent studies have shed light on the use of oral antibiotics for a wide variety of infections pertaining to different organisms and levels of acuity. While patients with Staphylococcus aureus (S. aureus) infections are included in some of these studies, the cohorts are often limited in size given the historical approach of strictly using IV therapy, the geographical impact on the incidence of infection caused by methicillin-resistant strains, or the preconceived notion that oral antibiotics are inferior for serious infections. Currently, there are many oral options with superb pharmacokinetic profiles to choose from when treating either methicillin-susceptible or methicillin-resistant S. aureus infections. Utilizing such agents has been shown to decrease length of stay, time to return to baseline activity, and exposure to invasive lines, thus providing benefits to both providers and patients. Additionally, it is important to note that one day of oral linezolid therapy is cheaper than one day of IV vancomycin therapy, with literature supporting equivalent, if not superior, efficacy. Due to the limited literature analyzing the use of oral agents in pneumonia caused by S. aureus, further study is needed to prove the safety and efficacy of oral therapy when compared to traditional IV therapy.

METHODOLOGY: This is a single health system, retrospective, observational review utilizing hospital electronic records. Patients with a positive respiratory culture for Staphylococcus aureus between November 1, 2017 and July 1, 2023 will be screened for inclusion. Those with imaging consistent with pneumonia up to 48 hours after the respiratory culture was obtained will be included and further stratified into the following groups: IV only, PO only, PO switch in first 24, 48, 72, and 96 hours. Exclusion criteria include mortality within 48 hours of empiric treatment initiation, persistent bacteremia on repeat blood cultures at any point throughout treatment, polymicrobial infection after obtainment of initial cultures, and the presence of complicated pleural infections such as loculated effusions, empyemas, or pulmonary abscesses. The primary outcome will be clinical response, assessed within 5 days of end of therapy, and defined as improvement in 2 or more clinical signs/symptoms of pneumonia, improvement or lack of progression of imaging abnormalities, and no requirement for additional antibacterial treatment. Secondary outcomes include 30-day readmission, in-hospital mortality, 60-day all-cause mortality, total length of stay, ICU length of stay, overall duration of therapy, and adverse events.

RESULTS: TBD

CONCLUSIONS: TBD

4:20pm – 4:35pm Y **Development and Implementation of a Pharmacist-Led Oral Chemotherapy Clinic** Athena A

Presenters: Emilee Potter

TITLE: Development and Implementation of a Pharmacist-Led Oral Chemotherapy Clinic

AUTHORS: Emilee Potter, Carmen Meadows

OBJECTIVE: Assess the impact of an oncology CPP on the dispensing and monitoring of oral chemotherapy agents

SELF ASSESSMENT QUESTION: Which of the following parameters are requirements for oral chemotherapy prescription dispensing according to VHA guidance?

BACKGROUND: The last 25 years has seen a rapid rise in oral chemotherapy agents and over one hundred agents are now in existence. The use of oral chemotherapy agents is growing at a rapid pace due to patient preference, ease of use, and convenience. Therefore, it is of great importance for Hematology and Oncology Centers across the nation to keep up with the increased demand for these medications. Close follow up is necessary in the oral antineoplastic patient population. As newer agents emerge, Clinical Pharmacist Practitioners (CPP) within the Department of Veterans Affairs (VA) can play an important role in the monitoring, dispensing, and distribution of these therapies. The purpose of this quality improvement project is to develop and implement a pharmacist-led oral chemotherapy clinic to ensure compliance with VHA Guidance on dispensing and monitoring of oral antineoplastic agents.

METHODOLOGY: This project will identify patients within a VA medical center who have an active prescription for an oral antineoplastic agent. These patients will be reviewed to assess appropriate medication monitoring and follow up, the oral antineoplastic agent day supply, and the presence of oral antineoplastic agent refills. These patients will then be contacted to discuss enrollment in the pharmacist-led oral chemotherapy clinic. Patient enrollment for new starts will be captured through the development of a Computerized Patient Records System (CPRS) alert that will notify the oncology CPP when an oral antineoplastic agent is prescribed. Initial patient visits will be completed by telephone; however, follow-up visits can occur through telephone, video, or face-to-face appointment. During the clinic visit, education on the antineoplastic agent, adverse effects, and length of treatment will be discussed. Patient regimens may be adjusted or supportive care medications initiated based on guideline-recommended treatment and clinical judgement.

RESULTS: In Progress

CONCLUSIONS: In Progress

4:20pm – 4:35pm S **Racial Differences in Rates of Second-Generation Antipsychotic Prescribing in Veterans** Athena J

Presenters: Logan Georskey

TITLE: Racial Differences in Rates of Second-Generation Antipsychotic Prescribing in Veterans

AUTHORS: Logan Georskey, Eric Schumann, Tina Plemmons

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Antipsychotics function as dopamine receptor antagonists and are primarily utilized for the treatment of schizophrenia and bipolar disorder. Antipsychotics are grouped into two separate generations, first and second. First generation antipsychotics (FGA) primarily function as D2 receptor antagonists and are usually associated with development of extrapyramidal symptoms (EPS). Second generation antipsychotics (SGA) primarily act as D2 receptor antagonists, or partial antagonists, and 5HT-2 receptor antagonists. SGA are less associated with EPS, but carry higher risk of metabolic side effects (weight gain, diabetes, and hyperlipidemia). Numerous studies for over 20 years have shown higher rates of FGA prescribing in Black populations compared to their White counterparts. The purpose of this project was to identify differences in outpatient SGA prescribing between Black and non-Black veterans.

METHODOLOGY: This retrospective quality improvement project was designed to evaluate the difference in rates of outpatient SGA prescribing between Black and non-Black patients at the Ralph H. Johnson Veterans Affairs Health Care System. Veterans were included if they had an active outpatient prescription for an antipsychotic. Data was retrieved on antipsychotic generation, sex, race, diabetes mellitus, cardiovascular burden, BMI, rurality, the number of mental health, primary care, and emergency department visits within the past year, long-acting injectable use, and schizophrenia or schizoaffective diagnosis. The primary outcome was the odds of Black Veterans receiving a SGA compared to Non-Black Veterans. The secondary outcome was the odds of Black Veterans to receive a SGA compared to Non-Black Veterans, stratified by schizophrenia or schizoaffective diagnosis.

RESULTS: Black Veterans had signficiantly lower odds of receiving a SGA compared to Non-Black Veterans in our crude analysis (OR: 0.353 95% CI 0.224-0.549 p<0.001). After controlling for explanatory variables, Black Veterans remained significiantly less likely than Non-Black Veterans to recieve a SGA (OR: 0.547 95% CI 0.341-0.878 p=0.012). In the secondary analysis, the significant difference in odds of SGA receipt remained among Black Veterans in the schizophrenia or schizoaffective group (OR: 0.357 95% 0.196-0.651 <0.001), but was no statistically significant for those without schizophrenia or schizoaffective disorder (OR: 1.543 95% 0.587-4.061 p=0.379)

CONCLUSIONS: After controlling for explanatory variables regarding demographics, cardiometabolic factors, and access to care, Black Veterans remained significantly less likely than Non-Black Veterans to recieve a SGA. After stratifiying by schizophrenia or schizoaffective diagnosis, the significantly lower odds remained only for those with a positive diagnosis. Those without a schizophrenia or schizoaffective diagnosis were not significantly less likely to recieve a SGA. This may provide implications for further research into provider prescribing habits and schizophrenia or schizoaffective disorder management within the Black Veteran population.

4:40pm – 4:55pm C **Evaluation of Pharmacist-Driven Nursing Protocol Changes and Education in Heparin Infusion Management** Parthenon 2

Presenters: Samantha Sims

TITLE: Evaluation of Pharmacist-Driven Nursing Protocol Changes and Education in Heparin Infusion Management

AUTHORS: Samantha Sims, Kaitlynn Krupp, Elan Champion, and Kristy Williams

OBJECTIVE: To assess heparin infusion management following a new collection protocol and nursing staff education on appropriately obtaining aPTT samples

SELF ASSESSMENT QUESTION: What laboratory parameters are best used to monitor continuous heparin infusions?

BACKGROUND: Patients admitted to the hospital with acute coronary syndrome, venous thromboembolism, or other conditions requiring systemic anticoagulation may be initiated on a heparin infusion. At our institution, heparin infusions are managed by pharmacists based on activated partial thromboplastin time (aPTT) levels drawn by the nursing staff. A previous review of the heparin infusion protocol revealed that the nursing staff does not have a standardized method for obtaining aPTT samples. This study evaluated the effects of a pharmacist-led education initiative aimed at improving aPTT collection and overall heparin infusion management.

METHODOLOGY: A protocol for obtaining aPTT blood samples was created and implemented by pharmacists. A retrospective chart review was conducted to assess up to 100 patients before and after education on the new protocol. Patients were included if they met the following criteria: at least 19 years old, received a heparin infusion for at least 48 hours, and were in targeted units from January 2023 through December 2023. Exclusion criteria included pregnancy/breastfeeding, bleeding upon presentation, and modification of goal aPTT levels during infusion. The primary outcome was achievement of three consecutive therapeutic aPTT levels within 48 hours of heparin infusion initiation. Secondary outcomes included heparin indication, aPTT levels drawn within 48 hours, total aPTT levels drawn, duration of the heparin infusion, and sub-, supra- and therapeutic aPTT levels.

RESULTS: Fifty patients in the pre-education group and thirty-five patients in the post-education group met inclusion criteria and were analyzed in this study. Six patients from the pre-education group achieved the primary outcome of three consecutive therapeutic aPTT levels compared to seven patients in the post-education group (12% vs 20%, p=0.3671). This finding was not statistically significant. However, the average number of total aPTTs drawn (15 vs 11, p=0.0454) and the average number of subtherapeutic aPTTs (6 vs 4, p=0.0483) between the pre- and post-education groups were significant. Of note, patients in the post-education group had a higher percentage of patients with an indication of Non-ST Elevation Myocardial Infarction (NSTEMI) (43%) compared to the pre-education group with only 24% of patients. All other secondary outcomes were not statistically significant.

CONCLUSIONS: Although there was not a statistically significant difference between the pre- and post-education groups for the primary outcome, the standardization and education did produce a difference in the average number of total aPTTs drawn and the average number of sub-therapeutic aPTTs. Therefore, the new protocol and education provided by pharmacists had some benefits. Additionally, further revision of the heparin protocol should be completed to improve achievement of therapeutic levels, patient outcomes, safety, and reduce the costs of care. One potential modification is switching to anti-Xa level monitoring. This change should be assessed and compared to the current protocol in a future study.

4:40pm – 4:55pm T **Outcomes of Variceal Hemorrhages with Octreotide** Athena B

Presenters: Clare Koss

TITLE: Outcomes of Variceal Hemorrhages with Octreotide

AUTHORS: Clare Koss, Lindsay Reulbach, Nikki Dominick, Alex Ewing

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Variceal bleeding is a gastrointestinal emergency and major cause of death in cirrhotic patients. The outcome for these patients depends on achieving hemostasis while avoiding complications related to bleeding or underlying liver disease. Guidelines recommend using vasoactive agents in addition to a procedural intervention to improve control of the bleed and reduce mortality, transfusion requirements, and duration of hospitalization. Due to the urgent need to procedurally intervene quickly, some patients may only receive the initial octreotide bolus—omitting the infusion completely. Yet, octreotide therapy plus procedural intervention has shown better outcomes than either intervention alone. Therefore, it is important to determine if there is a difference in outcomes depending on the regimen of octreotide for acute variceal hemorrhages.

METHODOLOGY: This is a multicenter, retrospective, observational study conducted at 7 hospitals within the Prisma Health-Upstate system from July 1st, 2022, to July 1st, 2023. Patients were included if they were over 18 years and had evidence of a variceal hemorrhage. They were excluded if they had a known upper GI malignancy, variceal bleeding within prior 90 days, inpatient mortality secondary to non-GI causes, mortality or surgical intervention within 12-hours after presentation, and/or were receiving anticoagulation with DOACs or warfarin. The primary outcome was the length of hospitalization from onset of GI bleed. The secondary outcomes were blood transfusions given post-octreotide initiation, in-hospital mortality secondary to GI causes, and the control of initial bleeding within 24 hours after the onset.

RESULTS: After exclusions, 73 patients were included in the analysis, 25 patients were in the infusion only group and 48 patients were in the bolus plus infusion group. Baseline characteristics were evenly distributed throughout the two arms, except alcohol was the principal etiology of liver disease for those in the bolus plus infusion group (79.17%; P-value: 0.005). The primary and secondary outcomes did not yield statistically significant results.

CONCLUSIONS: In this study of cirrhotic patients delayed in receiving surgical intervention, there was no statistically significant difference in length of hospitalization between patients who received a bolus only regimen and those who received a bolus plus infusion regimen of octreotide. This retrospective review prompts further exploration of octreotide regimens in acute variceal hemorrhage patients.

4:40pm – 4:55pm L **ANTI-EPILEPTIC DRUG THERAPY ESCALATION TO ACHIEVE SEIZURE CONTROL IN REFRACTORY STATUS EPILEPTICUS** Athena A

Presenters: Sarah Wise

TITLE: ANTI-EPILEPTIC DRUG THERAPY ESCALATION TO ACHIEVE SEIZURE CONTROL IN REFRACTORY STATUS EPILEPTICUS

AUTHORS: Sarah Wise, Alexandra Guido, Sierra Mullen

OBJECTIVE: Identify possible benefits to scheduled anti-epileptics as third line therapy

SELF ASSESSMENT QUESTION: Which of the following could demonstrate the advantage of utilizing a scheduled AED as third line therapy in patients with refractory status epilepticus?

BACKGROUND: Status epilepticus (SE) is defined as a seizure with 5 minutes or more of continuous clinical and/or electrographic seizure activity or recurrent seizure activity without recovery between seizures. This is a life-threatening neurologic emergency that is associated with high morbidity and mortality. Prolonged seizures can lead to neuronal injury, neuronal death and alterations in the neuronal networks; therefore, if first an(d second line agents fail to stop seizure activity, SE is considered to be refractory (RSE). With prolonged seizure, GABA receptors are progressively impaired due to internalization or endocytosis of these receptors and NMDA and AMPA receptors are up-regulated leading to a hyperexcitable state. A down-regulation of GABA receptors decreases efficacy of anti-epileptic drugs (AED) that work at this receptor. The American Epilepsy Guideline recommendations for management beyond second line is unclear to guide refractory seizure management. While therapy for RSE favors escalation to continuous IV infusions, these agents are associated with the need for mechanical ventilation, cardiac monitoring and serious adverse effects, such as hypotension requiring vasopressor therapy. An alternative practice supports escalation therapy with the use of additional second line AEDs without the side effects of continuous anesthetic infusions. This study evaluated the impact of different approaches to administration of 3rd line AEDs on seizure control in patients with RSE.

METHODOLOGY: Eligible participants included ≥18 years admitted to the neurosurgical intensive care unit at ECU Health Medical Center between June 1, 2021 and June 30, 2023 for treatment of status epilepticus. The primary objective was to determine if utilization of an additional urgent agent as a third line therapy decreases time to seizure control. Secondary objectives included assessment of ICU length of stay, duration of mechanical ventilation, time from hospital presentation to initiation of third line agent, and adverse effects of hypotension and P-R prolongation with lacosamide.

RESULTS: Fifty patients were included in this IRB-approved study with 55 individual encounters, n=34 received a continuous infusion(CI) 3rd line agent, n=11 received a scheduled AED and a CI within 24 hours (scheduled AED+CI), and n=10 received a scheduled AED. Patients (n=50) included were predominantly male (58%) and African American (64%) with a median age of 52.5 years. The median time to seizure control for the CI only group, the scheduled AED+CI group, and the scheduled AED group were 12.3, 17, and 14.3 hours, respectively ($p=0.376$). The secondary outcome of ICU length of stay was a median of 3.5 days for the CI group, 4 days for the scheduled AED+CI group, and 2 days for the scheduled AED group ($p=0.0045$). The secondary outcome of duration of mechanical ventilation for the CI group was a median of 2 days, for the scheduled AED+CI group was 3 days, and the scheduled AED group was 0 days ($p<0.0089$). The secondary outcome of time to initiation of third line agent was a median of 4 hours for the CI group, 5.5 hours for the scheduled AED+CI group, and 7.5 hours for the scheduled AED group ($p<0.0001$). There was no difference in adverse effects between the CI only group versus the scheduled AED+CI group and scheduled AED for hypotension ($p=0.341$) and P-R prolongation ($p=0.6285$).

CONCLUSIONS: Although time to seizure control was not statistically significant, the secondary outcomes demonstrate that utilization of scheduled AED’s as 3rd line therapy is a viable option and may reduce ICU length of stay and duration of mechanical ventilation. Thus, decreasing the financial and emotional impact on patients

and improve resource utilization within the healthcare system. More robust studies are needed to evaluate the impact of 3rd line agents to treat RSE.

4:40pm – 4:55pm ' **Implementing an EHR-Integrated Platform to Improve Specialty Pharmacy Services** Athena I

Presenters: Zach Krauss

TITLE: Implementing an EHR-Integrated Platform to Improve Specialty Pharmacy Services
AUTHORS: Zach Krauss, Kyle Hansen, Chandler Combs, Kathy Bricker
OBJECTIVE: Identify the potential aspects of specialty pharmacy services and patient care that may be improved by integrated clinical patient management and tracking software
SELF ASSESSMENT QUESTION: Which of the following would be expected to improve over time after implementation of an EHR-integrated specialty pharmacy management system? Patient satisfaction, New to therapy turnaround time, Employee satisfaction, Time to completion of clinical activities, All of the above
BACKGROUND: Pharmacists and pharmacy technicians have played a crucial role in improving patient outcomes within specialty pharmacy settings. Pharmacist interventions have been shown to enhance medication access, affordability, adherence, and patient satisfaction while potentially yielding cost-savings through the prevention of adverse outcomes. Specialty pharmacies must adhere to accreditation standards from agencies such as URAC and ACHC to access Limited Distribution Drugs (LDD), enter into payor contracts, and ensure quality patient care. Currently, Atrium Health Wake Forest Baptist Specialty Pharmacy Services (AHWFB SPS) utilizes TherigySTM, a standalone system for documenting patient outreach and clinical data. This requires manual data entry into the integrated health-system's EHR, resulting in inefficiencies and duplicative work.

Epic Compass Rose offers similar functionalities for documenting specialty pharmacy processes and services as TherigySTM but is fully integrated into the EHR. In March 2024, AHWFB SPS will implement EPIC Compass Rose. This marks the first-time use of Epic Compass Rose with no prior assessment of its impact on accreditation-driven patient outcomes, operational efficiency, staff perceptions, and staff efficiency. As many health-system specialty pharmacies are evaluating similar transitions, studying the impact is paramount.
METHODOLOGY: Single-site pre/post evaluation comparing specialty pharmacy outcomes with TherigySTM and Epic Compass Rose. Participants include patients age 18 and older who were new to AHWFB SPS and filled a specialty medication during the study period of April-October of 2023 (pre-implementation) and April-October 2024 (post-implementation). Exclusions consist of patients who opted out of all communications, transferred to another specialty pharmacy, prematurely discontinued medications, or did not fill any medications internally during the data collection period. The primary outcome is new to therapy turnaround time and secondary measures including completion times of clinical and refill activities, operational dispensing errors, patient goal documentation rates, patient Quality of Life (QoL) documentation rates, and employee perception of software utility.

Data collection encompasses baseline characteristics such as age, sex, race, comorbidities, and indication for specialty medication use, as well as specialty pharmacy metrics information aligning with the above secondary outcomes. The analytical plan involves the use of descriptive statistics to summarize continuous data through means or medians. Inferential statistics will facilitate comparisons; T-tests will be used for continuous endpoints and the Chi-squared test for categorical endpoints.
RESULTS: TBD/In Progress
CONCLUSIONS: TBD/In Progress

4:40pm – 4:55pm M **Impact of protocol to transition patients with type 2 diabetes from insulin-based regimen to GLP1 RA** Athena G

Presenters: Hailey Bass

TITLE: Impact of protocol to transition patients with type 2 diabetes from insulin-based regimen to GLP1 RA

AUTHORS: Hailey Bass, Emily Ghassemi, Amanda Perkins, Varsha Songara, Dustin Wilson

OBJECTIVE:

SELF ASSESSMENT QUESTION: All patients with type 2 diabetes should initiate a GLP1RA before basal insulin?

BACKGROUND: Type 2 diabetes mellitus (T2DM) increases risk for both macrovascular (MI, stroke, PVD) and microvascular (retinopathy, nephropathy and neuropathy) complications. Effective lowering of glucose levels reduces the risk of microvascular complications. However, evidence does not consistently support glucose lowering alone reduces cardiovascular (CV) risk. To align with the 2023 ADA guidelines, Coats Medical Services (CMS), established a pharmacist-based protocol to initiate and transition when indicated, a glucagon-like peptide 1 receptor agonist (GLP-1 RA) before insulin as initial injection therapy based on lower hypoglycemic risk, ASCVD benefits, weight loss and improved/diminished insulin resistance. However, the impact of such a protocol-driven transition in a family medicine clinic has not been well-studied. CMS is a rural family medicine resident clinic serving about 3,500 patients in Coats, NC and the surrounding communities; much of the patient population is uninsured or underinsured. The purpose of this study is to determine the impact of a pharmacist-based protocol to transition adult patients with T2DM from insulin-based regimen to a GLP-1 RA on glucose control.

METHODOLOGY: The primary objective of this IRB-approved, prospective, single-center, pre- and post-study was to describe the change in HgbA1c within adult patients with T2DM before and at least 90 days after the pharmacist-based, protocol-driven transition from insulin-based regimen to a GLP-1 RA. The secondary objectives were to describe the frequency of patient-reported hypoglycemic episodes (defined as patient reported blood glucose less than 70 mg/dL over the last 30 days), percentage of patients with HgbA1c at goal, weight (lbs) and number of antidiabetic medications prescribed all before and at least 90 days after the transition from insulin-based regimen to GLP-1 RA. Patients were included if they were 18 years of age or older, an active patient at Coats Medical Services between September 15th, 2023 and November 30th, 2023, had a diagnosis of type 2 diabetes mellitus (defined by ICD 10 codes), prescribed insulin and had an HgbA1c available within 90 days prior to September 15th, 2023 (implementation of the protocol). Those currently (or in the previous 3 months) prescribed a GLP-1 RA, had a contraindication to GLP-1 RA use (ie. a history of pancreatitis, medullary thyroid cancer (MTC) or multiple endocrine neoplasia type 2 (MEN2)), history of an allergy or intolerance to GLP-1 RA or unable to transition (due to affordability, insurance and/or compliance issues) were excluded. Descriptive statistics were used to evaluate the primary and secondary endpoints.

RESULTS: Of 63 patients screened, 22 patients were eligible and eight were successfully transitioned to a GLP-1 RA. The most common reasons for exclusion from the study were due to affordability including insurance coverage (n = 7), intolerance to previous GLP-1 RA (n = 12) or already prescribed a GLP-1 RA or within the previous 3 months (n = 10). To date, only 1 patient completed the needed follow-up. Data collection is continuing.

CONCLUSIONS: The results of this project remain in progress. However, the conduct of the study illustrates the challenges of providing such services within this patient care setting.

4:40pm – 4:55pm R **Corticosteroid Duration of Use in Septic Shock: Retrospective Review and Analysis** Olympia 1

Presenters: Sallee Rydalch Donaldson

TITLE: Corticosteroid Duration of Use in Septic Shock: Retrospective Review and Analysis

AUTHORS: Sallee Rydalch Donaldson, PharmD, Saniya Khan, PharmD, BCCP, Kristin Welborn, PharmD, BCPS

OBJECTIVE: Identify how corticosteroid duration in septic shock affects patient outcomes

SELF ASSESSMENT QUESTION: Is there a difference between hyperglycemia rates in patients whose high-dose glucocorticoid steroids are not discontinued within 24 hours of vasopressor discontinuation?

BACKGROUND: The 2021 Surviving Sepsis Guidelines recommend hydrocortisone 200 mg daily via intermittent doses of 50 mg every six hours or a continuous infusion in septic shock patients who have been adequately resuscitated and require at least 4 hours of vasopressor support (norepinephrine or epinephrine) at 0.25 mcg/kg/min or above. This recommendation came from four different trials. The ANANE, CORTICUS, APPROCHSS, and ADRENAL. Each trial used a different dosing scheme and duration of hydrocortisone treatment that ranged from intermittent dosing and continuous infusions given for 7-11 days with and without tapers. There is no recommendation from the Surviving Sepsis Guidelines on how or when to discontinue hydrocortisone when therapy is no longer needed. This study will aim to assess the common ordering patterns of providers at our institution along with assessing the effect hydrocortisone discontinuation has on vasopressor re-initiation rates in a single ICU admission.

METHODOLOGY: This retrospective chart review at a 540-bed community hospital will include patients who received hydrocortisone for the treatment of septic shock while admitted to the intensive care unit. Patients who received dexamethasone or other corticosteroids prior to and during the enrollment period were excluded. The primary outcome of this study was to assess the vasopressor re-initiation rates of patients whose hydrocortisone was discontinued within 24 hours of vasopressor discontinuation compared to those who had a delayed discontinuation of hydrocortisone. Secondary outcomes included: ICU length of stay, ICU death, hospital death, and 28-day mortality. Safety outcomes assessed in this study were hyperglycemia, stress-related bleeding, hypernatremia, and super-infection.

RESULTS: A total of 200 patients (100 in each arm) were included in the statistical analysis. There was no statistically significant difference detected between the patient characteristics in each group. The primary outcome of vasopressor re-initiation rates showed no statistically significant difference between groups (8% vs. 16% : 0.12).There were also no significant differences between the groups with respect to secondary outcomes including: ICU length of stay (6.1 vs. 6.7p: 0.19), ICU death (7% v. 12% p: 0.34), hospital death (13% v. 17% p: 0.55), and 28-day mortality (24% v. 34% p: 0.16). The safety outcomes of the respective groups are listed, hyperglycemia (40% v. 62% p:0.003), stress-related bleeding (6% v. 5% p: 1.0), hypernatremia (21% v. 21% p: 1.0), super-infection (5% v. 6% p:1.0) were collected.

CONCLUSIONS: This retrospective chart review showed no difference in vasopressor re-initiation rates between patients whose hydrocortisone was discontinued within 24 hours of vasopressor discontinuation or beyond 24 hours. However, there was a statistically significant increase in hyperglycemia in the patients who were in the delayed discontinuation group. In conclusion patients whose corticosteroid is discontinued within 24 hours of vasopressor cessation do not have a higher risk of vasopressor re-initiation and have a lower risk of hyperglycemia when compared to patient’s who continue corticosteroids greater than 24 hours after cessation.

4:40pm – 4:55pm R **Impact of Norepinephrine Dose at Time of Vasopressin Start on Intensive Care Unit Length of Stay** Olympia 2

Presenters: Caroline Witmer

TITLE: Impact of Norepinephrine Dose at Time of Vasopressin Start on Intensive Care Unit Length of Stay

AUTHORS: Caroline Witmer, Jessica Yarbrough, Lisa Gibbs

OBJECTIVE: To determine if norepinephrine dose at the time of vasopressin initiation affects intensive care unit (ICU) or cardiac intensive care unit (CICU) length of stay in patients with septic shock

BACKGROUND: The 2021 Surviving Sepsis Campaign endorses the use of vasopressors in those who remain hypotensive despite adequate fluid resuscitation with balanced intravenous crystalloid fluids. Norepinephrine is currently recommended by the Surviving Sepsis Campaign as the initial vasopressor of choice among septic patients. When mean arterial pressure (MAP) targets are not achieved with norepinephrine monotherapy, the Surviving Sepsis Campaign recommends that vasopressin be initiated as adjunct therapy. The addition of vasopressin is recommended over escalation of norepinephrine doses to restore adequate perfusion to vital organs. Current literature neglects to provide well-defined guidance regarding the optimal dose of norepinephrine at the time of adjunct vasopressin initiation. A recently published study evaluated the impact of low versus high-dose norepinephrine on 28-day mortality in patients with septic shock. Results of this study showed that when norepinephrine was dosed at less than 15 mcg/min, there was an improvement in 28-day mortality. The purpose of this study is to further examine whether the dose of norepinephrine at the time of vasopressin initiation affects intensive care unit length of stay among those with diagnosed septic shock.

METHODOLOGY: This single-center, retrospective, cohort study includes adult patients admitted to an intensive care unit at Self Regional Healthcare between January 1, 2022 and December 31, 2023, with proven or clinical suspicion of infection, who received both norepinephrine and vasopressin in the setting of septic shock to maintain a MAP greater than 65 mmHg. Comparator groups will be defined based upon the dose of norepinephrine the patient was receiving at the time of vasopressin initiation (0-4 mcg/min, 5-9 mcg/min, 10-14 mcg/min, 15-19 mcg/min and ≥20 mcg/min). Patients excluded from this study include those who received initial vasopressors other than norepinephrine and vasopressin, as well as those who were on vasopressors more than 24 hours prior to shock diagnosis. The primary outcome of this study is ICU length of stay. Secondary outcomes will include hospital length of stay, time to initiation of vasopressin, duration of vasopressor use, and in-hospital mortality. Safety outcomes include the rates of arrhythmias, extravasation, and ischemic damage related to the use of vasopressors.

RESULTS: A total of 213 patients were screened for inclusion, with 161 patients meeting criteria having received norepinephrine followed by vasopressin in the setting of septic shock. Baseline characteristics were evenly distributed among the comparator groups, the mean age of those included in this study was 69 years with 53% of patients being male. Overall, the dose of norepinephrine at time of vasopressin initiation had no impact on ICU length of stay ($P = 0.2919$), hospital length of stay ($P = 0.2185$), or duration of vasopressor use. Time to initiation of adjunct vasopressin was significantly lower among patients receiving low-dose norepinephrine ($P < 0.0009$). In-hospital mortality was highest amongst patients receiving ≥ 20 mcg/minute of norepinephrine. The most commonly reported safety outcome amongst all patient subgroups was arrhythmia occurrence.

CONCLUSIONS: Although ICU and hospital length of stay as well as duration of vasopressor use did not differ between analyzed subgroups, patients who received norepinephrine at doses ≥ 20 mcg/min had a higher in-hospital mortality rate and occurrence of adverse safety outcomes. These results are likely confounded by the severity of illness at baseline and unproportional subgroup sizes. Ultimately, a larger sample size is needed to accurately assess the impact of initiation of vasopressin at lower doses of norepinephrine.

4:40pm – 4:55pm R **Low Dose Insulin in Hyperkalemia** Parthenon 1

Presenters: Erin Harrell

TITLE: Low Dose Insulin in Hyperkalemia

AUTHORS: Erin Harrell, Kaitlyn Claybrook, Cara Leos

OBJECTIVE: Discuss medication treatment of hyperkalemia before and after implementation of a new order set.

SELF ASSESSMENT QUESTION:

BACKGROUND: Hyperkalemia is as an electrolyte disorder where serum potassium levels are found to be greater than five millimoles per liter. Appropriate treatment of hyperkalemia is crucial, with current Kidney Disease Improving Global Outcomes (KDIGO) guidelines recommending that treatment be guided based on patient potassium levels and electrocardiogram changes. Medication therapy management may involve the use of intravenous (IV) calcium chloride or calcium gluconate, IV regular insulin, dextrose, albuterol, sodium bicarbonate, potassium binders, and/or loop diuretics. Prior to the initiation of the new hyperkalemia order set, there was no guidance for providers to select medications based on serum potassium levels and electrocardiogram changes within the Baptist Health system. This led to patients receiving all medications listed in the various hyperkalemia order sets rather than allowing for medication selection based on serum potassium levels. The order set also historically included ten units of insulin, and some providers expressed concerns of hypoglycemia rates in these patients. This led to modification and implementation of a new order set that allows for guidance of medication therapy management based on serum potassium levels as well as a reduction in the amount of initial insulin administration. Our purpose was to evaluate the use of medication treatment in patients with hyperkalemia before and after implementation of a new medication order set.

METHODOLOGY: All patients within the Baptist Health system from June 1st, 2022 to June 30th, 2023 with a hyperkalemia order set initiation were identified via an electronic report for pre-implementation data. The same was done from December 13th, 2023 to January 23rd, 2024 for patients included within the post-implementation timeframe. After institutional review board (IRB) approval, patients were randomized using an excel spreadsheet and a random number generator. A retrospective chart review was performed. Information collected on the selected patients included demographics, length of stay, laboratory data, and medication administration record data.

RESULTS: After randomization, a total of 100 pre-implementation patients and 50 post-implementation patients were reviewed and included. Average serum potassium levels amongst pre- and post-implementation groups were similar prior to treatment at 6.3 mmol/L and 6.2 mmol/L respectively. Average reductions of serum potassium levels within the first 24 hours after treatment were 1.5 mmol/L in the pre-implementation group and 1.8 mmol/L in the post-implementation group. Prior to the new protocol, the average number of units of insulin administered was 8. After the new protocol was implemented, the average number of insulin units administered was 4.9. Rates of hypoglycemia were reduced from 14% in the pre-implementation group to 10% in the post-implementation group.

CONCLUSIONS: The modification of hyperkalemia order sets within the Baptist Health system allowed for guidance of medication therapy management based on serum potassium levels and EKG changes. Reduction of initial insulin administration from 10 units to 5 showed similar reductions in serum potassium levels and was associated less hypoglycemia events. Small sample size, ongoing hospital stays, and outliers may have contributed to these numbers. More research is needed at a larger scale to evaluate the use of less insulin on serum potassium level changes and hypoglycemic events.

4:40pm – 4:55pm F **Diagnostic and Antimicrobial Stewardship for Urinary Testing in Hospitalized Patients** Athena C

Presenters: Kacie Godwin

TITLE: Diagnostic and Antimicrobial Stewardship for Urinary Testing in Hospitalized Patients

AUTHORS: Kacie Godwin, Heather Gibson, Paul Jawanda

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Urinalysis with reflex to culture is a powerful tool for diagnosing UTI alongside associated signs and symptoms. Suboptimal laboratory testing can generate misleading diagnoses and influence the improper use of antimicrobials. Hematuria presence only on urinalysis is not a reliable predictor of infection. Large amounts of squamous epithelium may also indicate a contaminated source. The purpose of this study was to evaluate inappropriate urinalyses reflexed to culture and treated as a urinary tract infection (UTI). It was hypothesized that inappropriate reflexing would increase unnecessary antimicrobial use and duration.

METHODOLOGY: This retrospective chart review was conducted at FirstHealth Moore Regional Hospital (FHMRH) from September 1, 2023 through September 30, 2023. Patients at least 18 years of age admitted to the hospital were included in the study. Patients undergoing invasive urological procedures, pregnant patients, and patients with urinalysis collected in the emergency department were excluded from the study. Variables for data collection included gender, chief complaint, categorical components of the urinalysis, urine culture organisms, and a list of antimicrobials used. The primary outcome was a comparison in the frequency of inappropriate urinalyses reflexed to a culture that resulted in antimicrobial prescribing.

RESULTS: Of the 293 charts reviewed, 165 meet criteria for inclusion with a urinalysis reflexed to culture. 102 (62%) of cultures resulted in growth of an infectious organism. 36 (22%) of the 165 urinalyses were reflexed due to red blood cells only (RBCs), of which 16 (10%) resulted in antimicrobial treatment. 2 of the 36 RBC only urinalyses had documented urinary symptoms. 29 (18%) patients presented with documented urinary symptoms as outlined per IDSA guidelines. The most common organisms were Escherichia coli, Proteus mirabilis, and Pseudomonas aeruginosa. The most common agent used was ceftriaxone, with an average treatment duration of 5.85 days.

CONCLUSIONS: The presence of RBCs alone is not a diagnostic criterion that should warrant treatment with antimicrobials. Most patients in this study with only RBCs on urinalysis had no urinary symptoms. Over half of the patients in this study were treated with antimicrobial agents with no documented urinary symptoms. This study demonstrates patients are likely overtreated with antimicrobials when there is not true UTI presence. The limitation of the study was minimal documentation for positive urinary symptoms on chart review. These results have changed FHMRH’s practice to narrow the criteria required for urinalysis with reflex to culture.

4:40pm – 4:55pm F **Evaluation of Post-Artesunate Hemolytic Anemia - A Case Series** Athena D

Presenters: Sahand Golpayegany

TITLE: Evaluation of Post-Artesunate Hemolytic Anemia - A Case Series

AUTHORS: Sahand Golpayegany, Ashley Jones, Darshan Patel, Sarah Green, Benjamin Albrecht, Trinh Vu, Jesse Jacob, Sujit Suchindran, Henry Wu

OBJECTIVE: Evaluate our use of artesunate and identify post-artesunate delayed hemolysis risk factors.

SELF ASSESSMENT QUESTION: What is an additional potential risk factor for post-artesunate delayed hemolysis?

BACKGROUND: Malaria is caused by the Plasmodium parasite and each species can have various disease presentation. Severe malaria is a medical emergency and patients who meet the Center for Disease Control's criteria require treatment with intravenous artesunate. Various studies have found artesunate to reduce mortality, treatment failure, and parasite count compared to standard of care. Unfortunately, some patients who receive artesunate may experience post-artesunate hemolytic anemia, although the underlying mechanism is not well understood. Our objective was to evaluate the safety and clinical outcomes of hemolytic anemia post-artesunate administration.

METHODOLOGY: This is a single-center, retrospective analysis of adult patients who received IV artesunate for the treatment of severe malaria. Severe malaria was defined according to the CDC's criteria in patients who met at least one of the following: impaired consciousness/coma, hemoglobin below 7g/dL, acute kidney injury, acute respiratory distress syndrome, shock, acidosis, jaundice, disseminated intravascular coagulation, or a parasite density over 5%. Our primary objective was to assess the safety of treatment with IV artesunate. Our secondary objective was to evaluate the clinical efficacy of malaria treatment with IV artesunate. Patients will be identified through our institution's electronic medical record search for those who received at least 1 dose of IV artesunate. These patients will undergo chart review for data pertaining to their demographics, criteria for severe malaria, specific Plasmodium spp. Infection, resolution of parasitemia, underlying comorbidities, laboratory values pertaining to hemolytic anemia, and general clinical course and outpatient follow up. Summary statistics will be estimated for all variables collected. Continuous variables will be presented as means, standard deviations, and range. Categorical variables will be summarized as frequencies and percentages.

RESULTS: A total of 11 patients had received IV artesunate at our institution. Seven of these patients did not have the appropriate outpatient follow-up for labs and were excluded. Only 4 patients were evaluated and only 1 patient experienced hemolysis. All patients in our report were black, infected with P. falciparum, met the CDC's criteria for IV artesunate, and received at least 3 doses of artesunate. The patient who experienced hemolysis had a reported history of systemic lupus erythematosus.

CONCLUSIONS: Our case series suggests that baseline autoimmune conditions, especially those which can independently present with autoimmune hemolysis, may be a possible risk factor for PADH.

4:40pm – 4:55pm D **Evaluation of Medication Loss in Small Volume Intermittent Infusions at a Community Hospital** Athena J

Presenters: Claire Hiott

TITLE: Evaluation of Medication Loss in Small Volume Intermittent Infusions at a Community Hospital

AUTHORS: Claire Hiott, Michelle Denham

OBJECTIVE: Understand rationale for implementing a workflow change to promote correct infusion programming.

SELF ASSESSMENT QUESTION: How should small volume intermittent infusions be programmed to run to avoid potential medication loss?

BACKGROUND: In 2020, ISMP published a safety alert warning hospital pharmacists of an issue regarding hidden medication loss when using a primary administration set for small volume intermittent infusions. Due to the small volume infused, as much as 50% of a dose from these infusions can remain in the tubing as residual volume and may result in patients receiving incomplete doses. Best practice recommends these small volume intermittent infusions be administered via a secondary administration set to ensure that carrier fluid from the primary administration set is infused after the intermittent infusion to completely flush residual drug from the tubing. The purpose of this study is to investigate the prevalence of potential medication loss in small volume intermittent infusions at CHI Memorial and determine the impact of a workflow change to prevent medication loss.

METHODOLOGY: This is an IRB-approved, multi-center, retrospective review. A workflow change was implemented in February 2024 to allow nurses to place an order for a default maintenance fluid of normal saline to run as the primary infusion, if no fluid was already ordered. For small volume infusions stored in the automated dispensing cabinets, a pop up alert was added to remind nurses to administer the infusion as a secondary infusion. This workflow change included small volume anti-infective infusions of 100 mL or less with at least one administration during the specified time period. Data from infusions during January 2024 (pre workflow change) were compared to March 2024 infusions (post workflow change). Data was collected using the infusion status dashboard and the event/ alarm log on our infusion management software. Data collected for each period included the medication infused, date and time of infusion, IV pump serial number, channel programmed, clinical care area (CCA) of infusion, presence of carrier fluid infused, and programmed volume to be infused (VTBI). The primary endpoint was percentage of infusions correctly programmed and run as a secondary infusion before versus after the workflow change. Secondary endpoints included percentage of infusions programmed with a sufficient volume to be infused, percentage of potential medication loss before versus after the workflow change, and the most common factors contributing to medication loss before versus after the workflow change.

RESULTS: Out of 100 infusions from the pre-workflow change period, 53% were programmed as a secondary infusion, 57% were programmed with a sufficient VTBI, and 33% were programmed both on the correct line and with a sufficient VTBI. Of the 100 infusions from the post workflow change period, 77% were programmed as a secondary infusion, 72% were programmed with a sufficient VTBI, and 56% were programmed both on the correct line and with a sufficient VTBI. The difference between total theoretical medication loss due to improper programming and insufficient VTBI was 1106.1 mL in the pre-workflow change period and 686.5 mL in the post workflow change period.

CONCLUSIONS: Implementation of this workflow change increased the amount of small volume anti-infective infusions that were programmed correctly, thus leading to patient’s receiving more of their doses of these anti-infectives, minimizing medication loss. The post workflow change period showed a significant increase in the number of infusions programmed as a secondary infusion, programmed with a sufficient VTBI, and programmed both on the correct line and with a sufficient VTBI. There was also a reduction in total theoretical medication loss due to improper programming and insufficient VTBI. All four endpoints showed statistically significant differences.

4:40pm – 4:55pm E **Safety of Direct Oral Anticoagulants in Bioprosthetic Valves: A Pediatric Institution's Experience** Athena H

Presenters: Daniela Barisano

TITLE: Safety of Direct Oral Anticoagulants in Bioprosthetic Valves: A Pediatric Institution's Experience

AUTHORS: Daniela Barisano, Gwen Nance, Joshua Branstetter

OBJECTIVE: At the conclusion of my presentation, the participant will be able to identify statistically significant findings of patients on DOAC+ASA therapy vs ASA monotherapy.

SELF ASSESSMENT QUESTION: True or False: There was a difference in medication discontinuation between patients prescribed DOAC+ASA therapy compared to those prescribed ASA monotherapy after BHV insertion.

BACKGROUND: Insertion of a bioprosthetic heart valve (BHV) is associated with a lifelong increased risk of bleeding and thromboembolic events. The use of direct oral anticoagulants (DOACs) in pediatric patients with BHVs is currently off-label. Emerging but limited adult data show that DOACs may be safe in BHVs with mixed efficacy results. However, evidence for DOAC use in pediatric patients for BHVs has not been established. It has been theorized that using anticoagulation in addition to life-long antiplatelet therapy may prolong the life of BHVs by preventing micro-emboli formation during endothelialization of the valve and delaying calcification. We aim to evaluate the safety and efficacy of DOACs in addition to aspirin (ASA) compared to ASA alone in pediatric patients undergoing BHV replacement.

METHODS: This is a retrospective chart review of pediatric patients less than 18 years of age who underwent a transcatheter or surgical insertion of a BHV and received ASA or a combination of ASA and DOAC post heart valve insertion. The primary endpoint is a composite safety score consisting of clinically-relevant non-major bleeding, major bleeding, bleeding related re-admission, or medication discontinuation within 3 months. The secondary endpoints consist of the individual components of the composite score, in addition to incidence of valve thrombosis within six months and valve complication requiring re-intervention within six months.

RESULTS: Sixty-three patients were included in this IRB approved study (DOAC+ASA, n=30; ASA, n=33). Four patients (13%) in the DOAC+ASA therapy group vs 0 patients in the ASA monotherapy group had clinically relevant non-major bleeding (p=0.046). Thirty-three patients (100%) in the ASA monotherapy group had a composite safety score of 0. Twenty-six patients (87%) in the DOAC+ASA therapy group had a composite safety score of 0. One patient (3.3%) in the DOAC + ASA therapy group had a composite safety score of 1 for clinically relevant non-major bleeding. Three patients (10%) in the DOAC+ASA therapy group had a composite safety score of 2 for clinically relevant non-major bleeding and medication discontinuation within 3 months. There was no difference shown in medication discontinuation between patients in the DOAC+ASA therapy group compared to the ASA monotherapy group. No patients in either group had major bleeding, 90-day readmission due to bleeding, valve thrombosis, nor valve complication requiring re-intervention within 6 months. The median length of stay in the DOAC+ASA therapy group was 3 days (IQR 1-5) vs 4 days (IQR 3-6) in the ASA monotherapy group (p=0.016). Seven patients (23%) in the DOAC+ASA therapy group received concomitant NSAIDs vs 16 patients (48%) in the ASA monotherapy group (p=0.038). Four of the patients in the DOAC+ASA therapy group received ibuprofen and 3 patients received ketorolac. All 16 of the patients in the ASA monotherapy group received ibuprofen.

CONCLUSIONS: DOACs may be safe in pediatric patients after BHV insertion. There was no difference shown in medication discontinuation between patients in the DOAC+ASA therapy group compared to the ASA monotherapy group. Further evaluation of pediatric DOAC dosing and postoperative initiation would be beneficial.

5:00pm – 5:15pm ' **Examining the Role of a Pharmacy Technician Using the Direct Oral Anticoagulant Dashboard** Athena I

Presenters: Holly Salonia

TITLE: Examining the Role of a Pharmacy Technician Using the Direct Oral Anticoagulant Dashboard

AUTHORS: Holly Webster, Merideth Hope Allen, Lynsey Neighbors, Brittany Till

OBJECTIVE: Evaluate tasks a clinical pharmacy technician can complete as part of the healthcare team.

SELF ASSESSMENT QUESTION: Which of the following clinical responsibilities could be delegated to a clinical technician?

BACKGROUND: The Central Alabama Veterans Health Care System (CAVHCS) utilizes the Direct Oral Anticoagulant (DOAC) Population Management Tool digital management tool in their anticoagulation clinic to monitor safety and efficacy of DOACs. In August 2022, the CAVHCS began to utilize a clinical pharmacy technician (CPT) to address low priority alerts generated by the dashboard allowing the clinical pharmacy practitioner (CPP) to spend more time assessing high priority alerts and performing other clinical responsibilities. The objective of this study is to analyze the impact of a CPT regarding interventions for patients prescribed direct oral anticoagulants.

METHODOLOGY: The DOAC Population Management Tool was utilized to identify patients that had low priority flag alerts completed by a CPP and CPT from January 2-March 31, 2022 and January 2-March 31, 2023, respectively. The following data was collected: total number of low priority flag dismissals, reason for flag, action taken by pharmacy staff in response to the flag, actions taken by DOAC prescribers and patients in response to pharmacy staff recommendations, response rate and response time of DOAC prescriber to pharmacy staff recommendations, and time spent by the CPP on clinical encounters as compared to the CPT. All data is recorded and maintained confidentially. Average response rate and time calculated. Actions completed by the CPT assessed for appropriateness.

RESULTS: A total of 490 low priority flag alerts were dismissed by the CPT and 145 low priority flag alerts dismissed by the CPP during their respective timeframes. Of the total low priority flags dismissed, 20 adherence flags, 15 overdue lab flags, and 25 renewal flags were reviewed from both the CPT and the CPP dismissals. Provider average response rates to the CPT medication renewal alerts were 3 days to respond and 5.52 days to renewal with 25/25 (100%) recommendations accepted. Of the 25 renewal flags reviewed of the CPP, 7 were renewed, 5 were not renewed, 6 were discontinued, 6 were unclear or unable to contact Veteran, and 1 required a dose adjustment. Veterans that were identified as requiring updated labs on average reported to have labs drawn 19 days and 11 days after CPT and CPP alerts, respectively. A total of 13/20 prescriptions were refilled with 7/20 not refilled by the CPT and 3/20 refilled, 16/20 not refilled, and 1/20 status unknown by the CPP. Of the refill flags completed by the CPT assessed, 14/20 did not have notes entered into the patient’s chart. For the overdue flag alerts, 11/15 Veterans obtained updated labs and 4/15 did not obtain labs when alerted by the CPT. A total of 9/15 obtained labs, 2/15 did not obtain labs, and 4/15 had care deferred to a non-VA provider when addressed by the CPP. The CPP spent a total of 507 minutes addressing 53 low priority flags (7 flags excluded due to lack of documentation) assessed during the timeframe of the project.

CONCLUSIONS: The addition of a CPT to the anticoagulation clinic at the CAVHCS showed improved patient care by allowing for more low priority flag dismissals. A CPT allowed for a significant reduction in clinical pharmacy practitioner workload. CPTs can safely and effectively complete low priority flags. Providers had similar response rates to the CPT as they did the CPP. Facilities need to create clear protocols and guidance when choosing to utilize a clinical pharmacy technician.

5:00pm – 5:15pm M **Implementation of an Antibiotic Stewardship Program in a Rural Clinic and its Clinical Impact** Athena G

Presenters: Anthony Pinto

TITLE: Implementation of an antibiotic stewardship program in a rural clinic and its clinical impact.

AUTHORS: Anthony Ryan Pinto, Arinze Nkemdirim Okere, Sandra G Suther

OBJECTIVE:Identify some of the barriers and facilitators of implementing a pharmacy led Antibiotic Stewardship Program at Community Health Northwest Florida.

SELF ASSESSMENT QUESTION: What are some barriers that can be identified during implementation of ASP in a rural clinic?

BACKGROUND: Antimicrobial resistance (AMR) is an urgent global public health threat and has the potential to affect people at any stage of life according to the CDC. AMR happens when bacteria or fungus develop the ability to defend or defeat medications that were designed to kill them. It is estimated that AMR bacteria are directly responsible for 1.27 million global deaths and over 35,000 deaths in the United States. With such extreme consequences associated with AMR, health care officials are making efforts to curtail the development of AMR.Although antibiotics play a crucial role in our health care, unnecessary or inappropriate use of antibiotics is a driver for AMR. It has been estimated that about 80% of antibiotics prescribed in the United States occur in the outpatient setting and about 30% of those antibiotics are either unnecessary or inappropriate. Inappropriate antibiotic use is taking several different forms including: unnecessary antibiotic use, improper antibiotic selection, errors in antibiotic dosing, and errors in antibiotic duration. As the overall health of individuals living in rural areas is lower and the risk of antimicrobial resistance is higher than those in urban areas, inappropriate antibiotic prescribing remains high in this population. Pharmacy-led Antimicrobial Stewardship programs (ASP) have shown to improve patient outcomes and lower inappropriate antibiotic use. Despite this evidence most rural clinics do not have an ASP.

METHODOLOGY: We conducted a survey study at a Federal Qualified Health Center in Pensacola FL, using implementation science principle to understand the contextual factors impacting implementation of a pharmacist led ASP. In this study, 2 surveys were created. One for employees for Community Health Northwest Florida, which was guided by the Consolidated Framework of Implementation Research (CFIR), was administered to healthcare providers to assess their knowledge and opinions on how to implement an antibiotic stewardship program at community health walk-in clinic. In this first survey participants were providers (physicians and nurse practitioners), staff members, chief financial officers, and pharmacists employed at Community Health Northwest Florida. The second survey was distributed to patients that receive care from the clinic. This second survey assessed their knowledge and opinions on antibiotic use and antibiotic stewardship programs that include pharmacist involvement. Descriptive analysis was used to evaluate their responses. Using these surveys, we assessed the barriers and facilitators of implementing an ASP at Community Health North West Florida.

RESULTS: 13 surveys were completed by providers. A majority of providers (76.6%) agreed that research shows ASPs are effective at improving antibiotic prescribing. 69.2% of providers are open to changes in the clinical process to include an ASP and 77% said they are committed to the success of an ASP. The providers identified that lack of training and knowledge of ASP was a key barrier with 62% of responses. 54% of providers also identified the presence of patient pressure to prescribe antibiotics.

189 patient surveys were completed. Of those participants, 65.1% of patients did not know the reason they were taking antibiotics. Of patients surveyed, 70.7% did not know how long they were supposed to take their prescribed antibiotics. 65% of patients were unsure or agreed that antibiotics could be used to treat viral infections. However, 48.1% of patients were more likely to take the antibiotics as prescribed if pharmacists talked to them about their antibiotics and 66.1% of patients felt comfortable talking to pharmacists about their antibiotics.

CONCLUSIONS: Based on review of the providers and patient responses a few facilitators and barriers were identified to the implementation of an ASP at Community Health Northwest Florida. A majority of providers agreed that ASP are effective at improving antibiotic prescribing and open and committed to changes in the clinical process. However some barriers for the clinicians to implement an ASP were identified including lack of training and patient pressure to prescribe antibiotics. Also the patients felt comfortable talking to a pharmacist about their antibiotics and would be more likely to take them. The key barrier identified in patient surveys was lack of patient education about antibiotics.

5:00pm – 5:15pm C **Guideline Directed Medical Therapy in Patients with Advanced Heart Failure** Parthenon 2

Presenters: Kira Gaddis

TITLE: Guideline Directed Medical Therapy in Patients with Advanced Heart Failure
AUTHORS: Kira Gaddis, Dusty Lisi, and Mahmoud Abdou
OBJECTIVE: Describe the role of guideline directed medical therapy in advanced heart failure
SELF ASSESSMENT QUESTION: Patients receiving which medication class were less likely to experience 6-month mortality following hospital discharge?
BACKGROUND: Advanced heart failure is defined as persistent symptoms of heart failure leading to a recurrence of hospitalizations and interference of daily activities, despite the implementation of optimal guideline-directed medical therapy (GDMT). Most studies to date have evaluated the use of GDMT in patients with stage B or C heart failure. The purpose of this study is to identify if there is a relationship between stage D heart failure patients' GDMT and their outcomes, as it relates to hospital readmission for heart failure.
METHODOLOGY: Eligible participants included adults aged 18 years and older with stage D heart failure based on the American College of Cardiology (ACC) and the American Heart Association (AHA) staging. Patients included were those with a reduced ejection fraction of ≤ 40% who had one or more heart failure related hospitalizations in a designated twelve-month timespan. An IRB approved retrospective chart review was conducted to determine the 30-day rates of hospital readmission from date of discharge among advanced heart failure patients. Secondary outcomes included the number of episodes of acute decompensated heart failure on GDMT, mortality at six month follow up after hospital discharge, and hospital length of stay.
RESULTS: Eighty-nine patients were included in this IRB-approved study. The average age was 61 years. Sixty-six of eighty-nine (74%) participants were male, and forty-four (49%) had an ejection fraction of less than 15%.Ten of the patients (11.2%) experienced a 30-day hospital readmission for heart failure after discharge. Neither single agents of GDMT, nor combinations of beta blockers + ACEI/ARB/ARNI +/- MRA +/- SGLT2i, had a statistically significant association with or reduction of 30-day hospital readmission due to heart failure. The average hospital length of stay was 8 days. Nine patients (10%) experienced mortality at six-month post-hospital discharge. Patients receiving loop diuretics were less likely to experience mortality at 6 months HR, 0.13; 95% CI, 0.04-0.47)]. Patients receiving beta blockers were also less likely to experience mortality at 6 months (HR, 0.14; 95% CI, 0.04 to 0.48). Combinations of beta blockers + ACEI/ARB/ARNI +/- MRA +/- SGLT2i were not associated with a significant reduction of 6-month mortality.
CONCLUSIONS: GDMT did not appear to have a significant impact on 30-day rehospitalization due to heart failure in this small sample size. Patients receiving beta blockers or loop diuretics at discharge were less likely to experience mortality at 6 months. Further large studies are needed in order to determine if loop diuretics decrease mortality at 6 months in stage D heart failure patients.

5:00pm – 5:15pm R **Evaluation of Symptom-Triggered Benzodiazepines vs Phenobarbital for Alcohol Withdrawal Syndrome** Olympia 2

Presenters: Taylor Law

TITLE: Evaluation of Symptom-Triggered Benzodiazepines vs Phenobarbital for Alcohol Withdrawal Syndrome

AUTHORS: Taylor M. Law

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: At time of injury, up to 40% of trauma patients are estimated to be dependent on alcohol. Currently, the standard of care for alcohol withdrawal syndrome (AWS) is symptom-triggered benzodiazepines. Benzodiazepines have known risks with development of delirium and respiratory depression. There has been a renewed interest in utilizing phenobarbital first line for AWS in trauma-surgical patients. The purpose of this study was to compare outcomes of an institution specific phenobarbital monotherapy protocol compared to symptom-triggered benzodiazepines for the prevention or treatment of AWS in the trauma-surgical patients.

METHODOLOGY: The was a single-center, retrospective, quasi-experimental study to evaluate the change in AWS standard of care protocol for the Trauma Surgical Critical Care Service. Patients were divided into groups based on AWS protocol used. The primary outcome was ICU length of stay (LOS). Secondary outcomes included: mortality, hospital LOS, use of adjunctive agents for sedation, and incidence of mechanical ventilation rates after protocol initiation.

RESULTS: Overall, 200 patients were included with 100 patients in each group. Patients who received the phenobarbital protocol had similar ICU (2.6 vs 2.9 days; p equal 0.4) and hospital LOS (8.1 vs 7.1 days; p equal 0.05). All cause hospital mortality was significantly lower in those who received phenobarbital (4% vs 14%; p equal 0.02), as was use of adjunctive sedative agents (22% vs 46%; p less than 0.001), and mechanical ventilation rates (9% vs 31%; p less than 0.001) when compared to symptom triggered benzodiazepines.

CONCLUSIONS: Trauma-surgical patients managed with phenobarbital for prevention or treatment of AWS had similar ICU and hospital lengths of stay compared to symptom-triggered benzodiazepines. The use of a phenobarbital monotherapy protocol did result in lower mortality rates, mechanical ventilation rates, and adjunctive sedative medication use.

5:00pm – 5:15pm R **Treatment of cannabinoid hyperemesis syndrome in the emergency department** Olympia 1

Presenters: Aubrey Murphy

TITLE: Treatment options for cannabinoid hyperemesis syndrome in an emergency department

AUTHORS: Aubrey Murphy, Amber Patt, Patrick Filkins, John Patka, Ziad Kazzi

OBJECTIVE: List three agents that may be beneficial in the treatment of cannabinoid hyperemesis syndrome

BACKGROUND: Cannabinoid hyperemesis syndrome (CHS) has been increasingly reported in literature. CHS is characterized by cyclic nausea, vomiting, and/or abdominal pain associated with frequent and high-dose marijuana use. Currently, cessation of cannabis use is the only definitive treatment, and recommendations for acute interventions are limited to case reports & case series. Symptoms are generally refractory to standard therapies such as antipsychotics, antiemetics, and opioids. Recent literature suggests that topical capsaicin, dopamine antagonists (DA) and/or benzodiazepines (BZD) may provide benefit in the treatment of CHS, but there is little well-designed clinical data supporting these interventions. This investigation was conducted to assess the efficacy of topical capsaicin in conjunction with dopamine antagonists and benzodiazepines for treatment of CHS in an emergency department to improve throughput time, decrease resource utilization, and avoid unnecessary polypharmacy.

METHODOLOGY: A single-center, retrospective cohort analysis was conducted at an urban academic medical center with a 170-bed emergency department (ED). Patients who presented to the emergency department between January 2018 and January 2023 with an ICD-10 diagnosis code related to cannabis use and nausea/vomiting were screened for inclusion. Patients were excluded if they belonged to a protected patient population or had an unclear diagnosis of CHS. Data was retrospectively collected from the electronic medical record. Patients were categorized based on treatment received in the emergency department into the following groups: received capsaicin with standard therapies, received a benzodiazepine or dopamine antagonist with standard therapies, received a combination of capsaicin, benzodiazepine, and/or a dopamine antagonist with standard therapies, or received standard therapies alone. These cohorts were compared regarding the primary outcome of ED throughput time, as well as secondary outcomes including adjunctive medication requirements, adjunctive opioid requirements, 180-day readmission, utilization of additional imaging, and discharge prescriptions for capsaicin.

RESULTS: 131 patients met the inclusion criteria within the study period. 8 patients received capsaicin with supportive care, 54 received a BZD/DA with supportive care, 35 received a combination of capsaicin/BZD/DA with supportive care, and 34 received supportive care alone. Although the distribution among the groups was skewed, demographics and baseline characteristics did not significantly differ between the patients. Total throughput time was defined as time elapsed from ED encounter initiation to hospital admission or discharge. Administration of any of the primary study treatments was not found to decrease length of stay, as patients who received supportive care alone had the shortest mean throughput time of 9.23 hours, compared to those who also received a BZD/DA (9.74 hours), capsaicin (12.93 hours), or a combination of those therapies (13.04 hours). No statistically significant differences were observed in any of the secondary outcomes. This study demonstrated a high overall usage of additional imaging techniques for diagnostic purposes in these patients, and low overall rates of capsaicin prescribing at discharge. Patients who received primary treatments tended to require less adjunctive therapies and fewer doses of those therapies in addition to having reduced opioid requirements, compared to those who received supportive care alone.

CONCLUSIONS: Although capsaicin and/or dopamine antagonists and benzodiazepines did not result in a faster ED throughput time, they may be medication sparing, which is a
pertinent finding with polypharmacy and the opioid epidemic. Discharging patients with capsaicin may prevent readmission for CHS leading to decreased resource utilization, but this finding was not statistically significant. Prospective data is required to further assess the efficacy and safety of capsaicin, benzodiazepines, and dopamine antagonists for CHS.

5:00pm – 5:15pm R **Updates on Empiric Treatment of Chlamydia and Gonorrhea in the Emergency Department** Parthenon 1

Presenters: Rachel McGill

TITLE: Updates on Empiric Treatment of Chlamydia and Gonorrhea in the Emergency Department
AUTHORS: Rachel McGill, PharmD; Erin Waldee, PharmD; Raja Munthe
OBJECTIVE: Analyze the prescribing of empiric treatment for *Chlamydia trachomatis* and/or *Neisseria gonorrhoeae* in the emergency department based on the CDC's Sexually Transmitted Infections (STI) Treatment guidelines.
SELF ASSESSMENT QUESTION: A 27-year-old male was screened for chlamydia and gonorrhea in the emergency department. The physician wants to start empiric treatment. Which regimen should be started?
BACKGROUND: Empiric treatment often initiated in patients who present to the emergency department with suspected chlamydia and gonorrhea infection. In 2021, the CDC updated the guidelines for treating chlamydia and gonorrhea due to antimicrobial resistance. The recommended regimen for chlamydia changed from a single dose regimen to a seven-day regimen. For gonorrhea, the recommended regimen changed from a dual-antibiotic regimen to single antibiotic regimen. This study assesses the impact of guideline updates on the prescribing of empiric treatment for chlamydia and gonorrhea in the emergency department.
METHODOLOGY: This single-system, retrospective chart review included adults tested for *C. trachomatis* and/or *N. gonorrhoeae* in the emergency department during June-July of 2019 and 2022. During the two time periods, education on the updates of the CDC's STI treatment guidelines was not provided to physician by the pharmacy department. Patients were excluded if they were less than 18 years of age, pregnant, victims of sexual assault, prisoners, and left against medical advice.
RESULTS: A total of 242 charts were screened. Sixty-three patients were excluded. The primary outcome was achieved by 37 out of 90 patients (33%) in 2019 compared to 37 out of 89 patients (42%) in 2022. There was no significant difference between the prescribing of empiric treatment between the two years. Of the 33 patients tested in 2019, 20 of the patients received Ceftriaxone with Azithromycin, one of the recommended regimens for of chlamydia and gonorrhea. The second recommended regimen in 2019 was Ceftriaxone with Doxycycline. However, no patients out of 37 patients treated empirically in 2019 received this regimen. After updates to the guidelines, there became one recommended regimen, Ceftriaxone plus Doxycycline. Of the 37 patients treated empirically in 2022, 3 of these patients received the recommended regimen. The secondary outcome of incidence of positive and negative assays in patients receiving empiric treatment showed that patients with negative assays were empirically treated more than patients with positive assays.
CONCLUSIONS: Updates to the CDC's STI Treatment guidelines did not impact the prescribing of empiric treatment in patients who presented to the emergency department with a suspected *C. trachomatis* and *N. gonorrhoeae* infection. Further studies should be conducted after education is provided to physicians through an in-service presentation by the pharmacy department.

5:00pm – 5:15pm F **Impact of a Penicillin Allergy Assessment on the Penicillin Allergy Documentation and Clinical Outcomes** Athena B

Presenters: Hanh Tran

TITLE: Impact of a penicillin allergy assessment on penicillin allergy documentation and clinical outcomes

AUTHORS: Hanh Tran, Daniel Anderson, Joshua Eudy

OBJECTIVE: N/A

SELF ASSESSMENT QUESTION:

BACKGROUND: Penicillin is the most frequently reported medication allergy in the United States. However, up to 90% of people who report a penicillin allergy test negative with skin provocation. When referring to allergies, penicillin is often used synonymously with β-lactam, leading to avoidance of the entire class of antibiotics. Penicillin allergy labels are associated with poor cost and clinical outcomes, including higher rates of surgical site infection, Clostridioides difficile infection, and treatment failure for methicillin-susceptible Staphylococcus aureus (MSSA) and gram-negative bloodstream infections. Furthermore, reported allergy to penicillin can lead to overuse of broad-spectrum antibiotics, which promote the development of antimicrobial resistance such as methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant Enterococcus (VRE). Documented penicillin allergies are frequently inconsistent and incomplete. Clarification of severity and timing of allergic reaction, along with investigation of subsequent antimicrobial exposures can assist in selecting an appropriate antimicrobial agent for patients with penicillin allergy. A comprehensive penicillin allergy assessment may be effective in improving allergy documentation and clinical outcomes. This study aims to evaluate the effects of implementing a comprehensive penicillin allergy assessment protocol across a healthcare system.

METHODOLOGY: This was a retrospective, observational review conducted at Wellstar MCG Health. Adult patients with a documented penicillin allergy were included. Patients were placed in cohorts depending on the time of presentation in relation to implementation of the allergy assessment protocol; pre-implementation (November 1st to November 30th 2018) or post-implementation (November 1st to November 30th 2023). The primary outcome was rate of any change in penicillin allergy documentation including the removal of penicillin allergy or clarification of offending agent, severity, or timing of allergic reaction. Secondary outcomes included 30-day all-cause mortality and 90-day all-cause readmission in the hospital.

CONCLUSIONS: Implementation of a comprehensive penicillin allergy assessment improves allergy clarification and improves the use of first line beta-lactam antimicrobials

5:00pm – 5:15pm F **Implementation of MRSA Nasal PCR Pharmacy Protocol on Vancomycin Use for SSTI** Athena C

Presenters: Abigale Lipe

TITLE: Implementation of MRSA Nasal PCR Pharmacy Protocol on Vancomycin Use for SSTI

AUTHORS: Abigale Lipe, Caroline Jozefczyk, Carmen Faulkner-Fennell, Alex Ewing, Danielle Eskens, Sarah Withers

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Skin and soft tissue infections (SSTIs) are one of the most common infections encountered in health-systems in the United States where it has become common practice to empirically cover for methicillin-resistant Staphylococcus aureus (MRSA). Use of MRSA polymerase chain reaction (PCR) nasal swabs to aid in de-escalation of MRSA-active antibiotics is will established in pneumonia. Recent published literature has shown that MRSA PCR nasal swabs can be used similarly in SSTIs with a specificity ranging from 92.2-94% and negative predictive value ranging from 92-94%. The purpose of this study was to evaluate the effect on duration of therapy after implementing a pharmacy-led protocol for ordering MRSA PCR nasal swabs to be collected in patients on vancomycin therapy for an indication of SSTI.

METHODOLOGY: A single-center, pre- and post-implementation observational study was conducted on adult floor patients admitted to Prisma Health Greenville Memorial Hospital between March 2023 to January 2024 who were on vancomycin for only the indication of SSTI. Exclusion criteria included Gram positive organism growing from blood culture, admission to any ICU, or if the suspected infection was a deep surgical site infection, necrotizing fasciitis, osteomyelitis, or a vascular graft infection. Patients admitted in October 2023 were also excluded due to the initiation of the new protocol. The primary outcome of duration of vancomycin therapy was compared between pre- and post-implementation groups. Secondary outcomes included length of hospitalization, acceptance rate of de-escalation, total duration of antibiotic therapy, SSTI-related readmissions within 30 days, and MRSA PCR statistics.

RESULTS: A total of 911 patients were screened from monthly vancomycin administration reports. After excluding patients who did not meet criteria, a total of 229 patients were included in the study with 159 patients in the pre-protocol group and 70 patients in the post-protocol group. Preliminarily, 52.4% of patients were male and 78.2% of patients were white with majority of patients (80.8%) being treated for cellulitis as their type of SSTI. Full results are currently in progress.

CONCLUSIONS: In progess.

5:00pm – 5:15pm F **Incidence of AKI with AUC-based dosing of vancomycin in obese patients treated for SSTI** Athena D

Presenters: Robert Azevedo

TITLE: Incidence of AKI with AUC-based dosing of vancomycin in obese patients treated for SSTI

AUTHORS: Robert Azevedo, Cody Parker, Dustin Orvin, Joey Crosby, Bruce M. Jones

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: AUC/MIC-based dosing methodology for vancomycin was implemented at St. Joseph's/Candler in 2020, as this approach to vancomycin dosing has demonstrated a reduction in the occurrence of acute kidney injury (AKI) by minimizing exposure to vancomycin while maintaining efficacy. Current guidelines do not address AUC/MIC-based dosing in an obese population who is at higher risk of vancomycin-induced nephrotoxicity. The goal of the study was to compare the effect of AUC/MIC- and trough-based dosing of vancomycin on the incidence of AKI in patients with a body mass index (BMI) greater than 30 kg/m2 being treated for skin and soft tissue infections (SSTI).

METHODOLOGY: In this multi-center, retrospective, observational study, patients were identified by report that received vancomycin from January 1, 2017 to October 31, 2023 (pre- and post- AUC/MIC implementation) and filtered by ICD-10 codes for SSTI. SSTIs were chosen due to the fact that current guidelines make no recommendation for utilizing AUC/MIC-based dosing for non-serious MRSA infections, and data is lacking for this dosing modality in this disease state. Patients were randomly selected, and those who met inclusion criteria were matched 1:1 as the pre-implementation group with trough-based dosing or the post-implementation group with AUC/MIC-based dosing. The primary outcome was incidence of AKI, defined as an increase in serum creatinine of at least 0.3 mg/dL or an increase of 1.5 times baseline within 48 hours. Secondary outcomes included overall difference in hospital length of stay (LOS), difference in LOS for BMI of 30 kg/m2 to 35 kg/m2, difference in LOS for BMI greater than 35 kg/m2, and severity of AKI. Severity of AKI was determined using the serum creatinine component of the AKIN staging criteria for acute kidney injury, with stage 1 AKI being least severe and stage 3 AKI being most severe. Patient age, sex, race, height, weight, diagnosis, and characteristics of vancomycin therapy were also collected.

RESULTS: Anticipated enrollment is 500 patients total. Currently, a total of 149 patients have been included in this study – 75 treated with vancomycin dosed based on AUC/MIC and 74 dosed based on trough levels. Data presented is an interim analysis based on preliminary data, as this study has not yet achieved power. For the primary outcome of incidence of AKI, 16 (21.3%) and 14 (18.9%) patients were in the AUC/MIC and trough groups, respectively. Patients in the AUC/MIC group had an average LOS of 8.14 days, while patients in the trough-based dosing group had an average length of stay of 7.29 days. Patients with a BMI between 30 and 35 kg/m2 had an average LOS of 6.27 days in the AUC/MIC group, and 7.43 days in the trough dosing group. For patients with a BMI greater than 35, the average LOS was 9.4 days in the AUC/MIC dosing group, and 7.02 days in the trough dosing group. There was a similar distribution of AKI severity between groups. There were 11 AUC/MIC group patients vs. 9 trough group patients with stage 1 AKI, 4 patients vs. 3 patients with stage 2 AKI, and 1 patient vs. 2 patients with stage 3 AKI.

CONCLUSIONS: In this interim retrospective analysis that compared AUC/MIC-based dosing and trough-based dosing of vancomycin on AKI incidence in obese patients treated for SSTI, there was no difference in the overall incidence of AKI. For the secondary outcomes of LOS and severity of AKI, there were also no differences noted between groups. As data to support the use of AUC/MIC monitoring is based on decreasing AKI, the question remains if certain groups would benefit more from this process. This study was limited by the small sample size and low number of events detected.

5:00pm – 5:15pm E **Evaluation of Once Daily Versus Twice Daily Dosing of Caffeine for Apnea of Prematurity** Athena H

Presenters: Dion Blocker

TITLE: Evaluation of Once Daily Versus Twice Daily Dosing of Caffeine for Apnea of Prematurity

AUTHORS: Dion Blocker and Alessia Jankowski

OBJECTIVE: Evaluate the efficacy of twice daily caffeine citrate on the incidence of apnea and bradycardia.

SELF ASSESSMENT QUESTION: What is the half-life of caffeine citrate in neonates and how does it differ from that of adults?

BACKGROUND: Apnea of prematurity (AOP) is defined as a sudden respiratory pause for at least 20 seconds, or a shorter pause accompanied by bradycardia, pallor, or cyanosis, in infants born less than 37 weeks of gestation. AOP is one of the most common diagnoses in the Neonatal Intensive Care Unit (NICU). Apneic events most commonly occur in preterm infants born at less than 37 weeks gestation due to poorly developed mechanisms of respiratory control. The immature respiratory system functions most affected are respiratory effort and airflow. To date, few studies have examined twice-daily dosing schedule of caffeine for apnea of prematurity. Given the lack of evidence and prolonged elimination half-life of caffeine in the neonatal population, evaluation of twice daily caffeine citrate dosing for the treatment of apnea of prematurity can identify opportunities for therapy optimization in Level III NICUs across the Wellstar Health System.

METHODOLOGY: The design of the study was a multi-center, retrospective, noninferiority chart review of neonatal patients admitted to Wellstar Health System NICUs. A paired t-Test was conducted to determine if there was a difference between each treatment group. Neonates that transitioned from once daily caffeine citrate to twice daily caffeine citrate from June 1, 2021, to June 1, 2023, were included in the study. Data was obtained from Enterprise Data Analytics due to data query limitations identified in Epic® Slicer Dicer. Patients were included if initiated on caffeine citrate therapy for both once daily and twice daily dosing, were a preterm neonate born on or before 37 weeks gestation and received at least ten days of both dosing regimens.

RESULTS: A total of 28 patients were included in the study. Baseline demographics included a median gestational age of 25w5d, majority of male patients (57%), a median birth weight of 0.78 kg, and a median length of stay of 90.5 days. The primary outcome of median apneic event incidence per 10 days demonstrated a statistically significant difference between the regimens (p-value = 0.031). The primary outcome of bradycardic event incidence per 10 days demonstrated that there was not a statistically significant difference between the two regimens (p-value = 0.704). The secondary outcome of tachycardic event incidence per 10 days demonstrated that there was not a statistically significant difference between the two regimens (p-value = 0.165). The secondary outcome of tachypneic event incidence per 10 days demonstrated that there was not a statistically significant difference between the two regimens (p-value = 0.631). The secondary outcome of desaturation event incidence per 10 days demonstrated a statistically significant difference between the two regimens (p-value = 0.012).

CONCLUSIONS: Based on the findings of this study, twice daily caffeine citrate dosing significantly decreased the incidence of apnea compared to the once daily regimen. There was no difference found in the incidence of bradycardia, tachycardia, or tachypnea for the two regimens. There was a statistically significant increase in the incidence of desaturation events for the once daily regimen compared to the twice daily regimen. Limitations of the study include: the collected data was dependent upon clinician documentation, a small sample size was necessary due to many exclusions, 7.5 mg/kg daily was compared to 5 mg/kg twice daily (total of 10 mg/kg daily) due to many exclusions, and patients with mechanical ventilation were included. The choice of a once daily or twice daily caffeine citrate regimen for apnea of prematurity can continue to be based on provider preference due to limitations.

5:00pm – 5:15pm S **EVALUATION OF PHARMACIST LED MENTAL HEALTH MEDICATION EDUCATION CLASSES** Athena A

Presenters: Hilary Spralling

TITLE: EVALUATION OF PHARMACIST LED MENTAL HEALTH MEDICATION EDUCATION CLASSES

AUTHORS: Hilary Spralling, Anna Green, Rashida A. Fambro

OBJECTIVE: Identify the impact of pharmacist led education classes on understanding of mental health medication

SELF ASSESSMENT QUESTION: T or F: Mental health medication regimens can be complex for patients and adverse effects vary.

BACKGROUND: Mental health regimens can be complex for patients to manage and associated adverse effects can vary.

METHODOLOGY: Patients were enrolled in pharmacist led education classes and surveyed pre and post-classes.

RESULTS: 15 patient were included in review, 7 patient completed attended all education classes. For There was an increase in overall score comparison of pre-survey (72.6%) compared to post-survey (84.5%) when assessing knowledge of mental health medications. Based on individual response to Likert-scale questions, patient scored higher on all post-survey questions except one question that assessed how medications work when comparing pre-survey (92%) and post -survey (74%).

CONCLUSIONS: Education by a clinical pharmacy practitioner improved patient’s perception and knowledge of mental health medications after attending a clinical pharmacy specialist-led medication class in a primary care setting.

[ ] 'Administration (ADM)' [M] 'Ambulatory Care (AMB)' [C] 'Cardiology (CAR)' [N] 'Community Pharmacy (CP)' [R] 'Critical Care/Emergency Medicine (CCM)'

[G] Geriatrics (GER) [F] 'Infectious Disease (ID)' [T] 'Internal Medicine (IM)' [D] 'Medication Safety (MES)' [L] 'Neurology (NEU)' [Y] 'Oncology (ONC)'

[P] Pain Management (PM) [E] 'Pediatric (PED)' [S] Psychiatric Pharmacy (PSY) [A] 'Transitional Care (TC)' [1] 'Transplant (TRP)'

APRIL 26 • FRIDAY

8:30am – 8:45am M **Evaluation of Pharmacy & Social Work Interventions Within an Ambulatory Care-Based TOC Service** Athena G

Presenters: Dillon Hagan

TITLE: Evaluation of Pharmacy & Social Work Interventions Within an Ambulatory Care-Based TOC Service
AUTHORS: Dillon Hagan, Courtney E. Gamston, Mafe Zmajevac, Danielle Waites, Kimberly Braxton Lloyd
OBJECTIVE: At the conclusion of the presentation, the participant will be able to identify the most common pharmacy interventions performed within an outpatient transitions of care (TOC) service
SELF ASSESSMENT QUESTION: List one of the three most common outpatient pharmacy intervention types performed within this TOC service
BACKGROUND: Transitions of care (TOC) represent a critical phase in a patient's healthcare journey. Complex medication regimens and multiple health conditions increase the risk of post-discharge drug-related problems (DRPs), a key driver of hospital readmissions. Pharmacists have demonstrated effectiveness in identifying and resolving DRPs across diverse patient groups, while social workers have played a crucial role through assessing, engaging, intervening, and coordinating social services for patients during care transitions.

A pharmacist-led ambulatory care-based TOC collaborative service between a College of Pharmacy and community hospital was established in 2022. This interprofessional service provides interventions both face-to-face during the hospital stay and via telemedicine in the outpatient setting. Outpatient follow-up is performed by both pharmacy and social work on approximately days 3-, 7-, 12-, and 28 post-discharge. The TOC service enrolls currently admitted patients with a recent history of multiple admissions or a diagnosis of heart failure.

The purpose of this study was to enumerate and evaluate interventions made by pharmacy and social work in an ambulatory care-based transitions of care service.
METHODOLOGY: This project is an IRB-approved service evaluation. A retrospective analysis of pharmacy and social work interventions performed between February 2022 to September 2023 was completed. Intervention data was collected from visit documentation and were categorized into 10 different intervention types. Baseline barriers related to social determinants of health were identified using the “Health Capability Questionnaire” which identified 12 categories of barriers to care. The relationship between 30-day readmission and intervention types were analyzed using chi-squared analysis, while T-test analyses were used to compare number of interventions, diagnoses, and barriers to care between readmission groups.
RESULTS: There were 96 unique patients that had outpatient interventions during the assessed timeframe. Baseline demographic information was as follows: age 60 ± 15.12 years, 56.2% male, 43.8% female, 39.6% white, 60.4% black. A total of 2175 interventions—2097 pharmacy and 78 social work—were performed, with an average of 22.67 ± 18.2 interventions per patient. The most common intervention type was “Patient Care & Counseling” followed by “Medication Therapy Management” and “Care Coordination and Referrals”. A total of 465 barriers to care were identified, with an average of 4.85 ± 1.82 per patient. The most common barrier to care category was activity level, followed by lack of caregiver support and financial stability. No significant difference was observed in number of barriers, diagnoses at discharge, or average interventions between those with 30-day readmission and those without. Correlation between specific barriers to care and readmission groups was also insignificant. A statistically significant difference was observed in the “Adherence and Compliance” intervention type between patients with and without 30-day readmission. No other intervention types showed a significant difference between groups.
CONCLUSIONS: Patients receiving “Adherence and Compliance” interventions had a significantly lower 30-day readmission rate in the study population. This warrants an increased focus amongst providers on interventions categorized into this type. With over 2000 pharmacist-led interventions completed for less than 100 patients, this

study emphasized the important role pharmacy can play in transitional care for high-risk patients. Further investigations on outpatient telehealth services during care transitions are needed to capture a larger patient population. One weakness of this study was the observed differences in quantity of documentation between pharmacy and social work. Future research focused on gathering perspectives and insight of social workers should be conducted to appropriately utilize their expertise and ensure adequate documentation in ambulatory-care based transitions of care services.

8:30am – 8:45am F **Characterization of Invasive Fungal Infections in Patients with ALL and AML** Athena D

Presenters: Zach Bentz

TITLE: Characterization of Invasive Fungal Infections in Patients with ALL and AML

AUTHORS: Zachary Bentz, Neha Poladi, Emily Perez

BACKGROUND: Patients with acute leukemia experiencing profound and prolonged neutropenia due to intense chemotherapy are among those at the highest risk for infection. Notably, invasive fungal infections pose significant morbidity and mortality among leukemia patients, with neutrophils crucial for defense. Triazole antifungals, like fluconazole and posaconazole, are preferred for prophylaxis, although their spectrum and adverse effects differ. Antifungal recommendations vary between acute lymphoblastic leukemia (ALL) and acute myeloid leukemia (AML), with posaconazole favored for AML per NCCN guidelines. However, the European Working Group for Adult ALL advises against mold-active antifungals due to drug interactions. Recent studies challenge the assumption of higher invasive fungal infection rates in AML versus ALL and suggest potential benefits of mold-active triazoles. Yet, data on mold infections in ALL are sparse, and drug interactions pose challenges. Institution-specific data on fungal infections in ALL and AML are needed to inform antifungal prophylaxis decisions at East Carolina University (ECU) Health Medical Center.

METHODOLOGY: This retrospective, single-center, cohort study included adult patients diagnosed with AML or ALL with a change in antifungal therapy during an inpatient hospitalization between January 1, 2014 and December 31, 2021. This study was designed to characterize possible invasive fungal infections among inpatients with AML and ALL. Patient demographics, leukemia factors, chemotherapy regimen, neutropenia history, and antifungal agents were evaluated. Data was collected through reports generated from the electronic medical record and retrospective chart review. Descriptive statistics were utilized to characterize invasive fungal infections.

RESULTS: Among the 19 patients with a possible invasive fungal infection analyzed, 26% were female, the median age was 63 (33) years, the median Charlson Comorbidity Index was 5 (3), and 79% had a diagnosis of AML. The median total inpatient antifungal treatment duration was 29 (21) days, the median duration of severe neutropenia was 31 (32.5) days, and in-hospital mortality was 26%. The median duration of neutropenia was 5 days longer in patients with AML compared to ALL. 75% of patients with ALL were initially on fluconazole and transitioned to a mold-active triazole antifungal at discharge.

CONCLUSIONS: Possible invasive fungal infections are associated with considerable in-hospital mortality among patients with AML and ALL. The trend in patients with ALL transitioning from fluconazole to a mold-active triazole antifungal at discharge warrants further investigation into the incidence of invasive mold infections among patients with ALL on fluconazole for invasive fungal infection prophylaxis.

8:30am – 8:45am T **The Effects of Opioid Administration on Clostridioides Difficile Infection** Athena B

Presenters: Erin Anderson

TITLE: The Effects of Opioid Administration on Clostridioides Difficile Infection

AUTHORS: Erin Anderson, Brooke Brown, Nikki Freeman, Skyler Brown, John R. Yates

OBJECTIVE: Determine if opioids during treatment of C.difficile leads to progression to severe infection

SELF ASSESSMENT QUESTION: Describe the population to discontinue opioids during the treatment of C. difficile infection.

BACKGROUND: Clostridioides difficile (C. difficile) is a leading cause of infectious diarrheal illness and continues to be a growing cause of healthcare-associated infection. Opioids are a commonly used class of medications in hospitalized patients that can lead to the slowing of the gastrointestinal tract. It is hypothesized that using opioids while a patient is actively infected with C. difficile may reduce clearance of the organism and cause worsening of the infection. The purpose of this study is to determine if opioid use while hospitalized with C. difficile infection leads to a higher rate of progression to severe or fulminant disease.

METHODOLOGY: This is a retrospective cohort study which included patients with a C. difficile positive or intermediate stool sample along with clinical signs and symptoms of colitis. Patients were excluded if they had serum creatinine above 1.5mg/dL or white blood cell count above 15,000/µL at diagnosis, or if they were pregnant during hospitalization. The primary composite endpoint was a progression to severe or fulminant disease, defined as serum creatinine rise to greater than 1.5mg/dL, white blood cell count above 15,000/µL, or signs of shock in relation to infection within the first 5 days of therapy. Secondary outcomes included hospital length of stay in days and time to resolution of diarrhea in days. The groups were divided based on if they received opioids during the hospitalization to perform a subgroup analysis of the opioid group based on morphine milligram equivalents received. It was determined that 146 total patients would yield 80 percent power to detect a change in the primary endpoint. Evaluation of the primary endpoint was done using the chi-squared test, and evaluation of the secondary endpoints were done using the Mann-Whitney U test.

RESULTS: A total of 73 patients were included in the non-opioid group and 93 patients in the opioid group. The only statistically significant difference between patient demographics was that more patients in the opioid group were on chronic opioid therapy prior to hospital admission, and that the opioid group was on average younger. The composite outcome occurred in 16 patients (21.9%) without opioids versus 26 patients (28.0%) with opioids; p=0.37. The average length of stay was 7.2 days without opioids and 9.3 days with opioids (p=0.11), and the average time to resolution of diarrhea was 3.5 days without opioids and 5.5 days with opioids (p=0.40).

CONCLUSIONS: There was no significant difference in the rate of progression to severe or fulminant disease between groups. There was a numerical trend towards disease progression in patients who had opioids, primarily driven by those who had higher dosages of opioids used. These results may support the use of opioids when clinically necessary for patients who are hospitalized with C. difficile infection. Larger studies may be needed to determine if the trend of higher morphine milligram equivalents will lead to worse outcomes.

8:30am – 8:45am D **Evaluating the Impact of Pharmacist Recommendations Based on PGx Test Results** Athena J

Presenters: Lauren Holbrook

TITLE: Evaluating the Impact of Pharmacist Recommendations Based on PGx Test Results

AUTHORS: Lauren Holbrook, Carla Veronese, Adrian Brown

OBJECTIVE: Explain the impact of proactive pharmacist recommendations based on pharmacogenomic testing results

SELF ASSESSMENT QUESTION: Do pharmacist intervention notes affect prescriber decision-making based on pharmacogenomic (PGx) testing results?

BACKGROUND: The purpose of this study is to evaluate the impact of proactive pharmacist recommendations to prescribers based on results from an 11-gene pharmacogenomic testing panel compared to reactive clinical reminder order checks. Over three years of conducting pharmacogenomic testing through the Pharmacogenomic Testing for Veterans (PHASER) Program at the Birmingham VA Health Care System, pharmacists have taken an active role in interpreting pharmacogenomic results and notifying prescribers of recommendations via intervention notes in the medical record; however, clinical reminder order checks that notify prescribers of pharmacogenomic interactions upon order entry are now available on all medications impacted by pharmacogenomic tests.

METHODOLOGY: This research project retrospectively assessed the impact of clinical reminder order checks that are sent to prescribers upon ordering a medication that was affected by a patient's pharmacogenomic test results compared to the impact of intervention notes written by pharmacists which interpreted the test results in a historical group of patients prior to the complete rollout of clinical reminder order checks. The primary objective of this study was the number of medication changes made based on pharmacogenomic test results. The number of patients who participated in the PHASER program and the percentage of patients who were currently prescribed a medication that was impacted by the results was assessed. The medications and medication classes most commonly affected by the results of the pharmacogenomic testing were also evaluated, along with the specific genes that were tested to determine which genes were most likely to have a mutation that affected medication therapy. The number of order checks that were sent to prescribers was assessed, along with the percentage of medication orders required a medication dose adjustment based pharmacogenomic test results.

RESULTS: Of the 64 prescriptions affected by PGx testing results, a medication change was needed for 11 prescriptions (17.19%); however, a change to the prescription was made to only 8 prescriptions. These 8 prescriptions were investigated to determine the trigger for making a change in therapy. Seven of the changes made were due to the recommendations in the pharmacist's PGx intervention note and 4 were made in conjunction with a provider visit. None of the changes made were due to a clinic reminder order check. Inthe control group, 4 prescriptions required dose adjustments due to the pharmacogenomic test results; however no changes had been made at the time of data collection. The most commonly affected gene was CYP2C19 and the most commonly affected medication class was proton pump inhibitors.

CONCLUSIONS: While the majority of PGx testing results do not require any medication adjustments, pharmacist recommendations were identified as primary reasons for medication changes. Clinic reminder order checks did not cause providers to make any medication changes. These findings support continued pharmacist intervention notes based on PGx test results to improve patient -specific care and minimize adverse events.

8:30am – 8:45am M **DEVELOPMENT AND IMPLEMENTATION OF A PENICILLIN ALLERGY DE-LABELING SERVICE IN AN OUTPAITENT SETTING** Athena H

Presenters: Virginia Reese

TITLE: DEVELOPMENT AND IMPLEMENTATION OF A PENICILLIN ALLERGY DE-LABELING SERVICE IN AN OUTPAITENT SETTING

AUTHORS: Jennie Reese, Matthew Holt, Jamie Crossman, Matthew McAllister

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Penicillin antibiotics are safe and effective for the treatment of pneumonia, meningitis, syphilis, endocarditis, and other bacterial infections. However, patient reported allergy to penicillin is the most commonly reported drug allergy. Approximately 10% of the U.S. population report an allergy to penicillin, but when evaluated fewer than 1% of the population are truly allergic. Without a standardized allergy evaluation, penicillin allergy labels remain on electronic health records and may lead to increased costs, risk of antibiotic resistance, and risk of adverse outcomes. Although intrusive and complex modalities are available to de-label patients' penicillin allergy, a simple risk assessment may be performed using a validated clinical decision tool. The PEN-FAST allergy assessment is a four-question assessment with a negative predictive value of 96.3% to identify low-risk penicillin allergies without the need for skin testing. The purpose of this study is to assess penicillin allergy labels using a standardized algorithm and the PEN-FAST allergy assessment to recommend de-labeling of inappropriate penicillin allergies.

METHODOLOGY: A prospective quality improvement initiative was conducted of adult patients with documented penicillin allergies at Piedmont Columbus Regional Midtown Family Medicine Clinic between October 1, 2023-January 1, 2023. Patients were identified by a report generated for documented penicillin allergies via the institution's electronic medical record. Patients with documented penicillin allergies were contacted via telephone or in person and provided with a verbal consent acknowledgment. If patients agreed to the interview, the allergy assessment was completed. The results of the assessment were documented in the electronic health record and sent to the patient's primary care provider with a recommendation to keep the documented allergy and avoid other penicillin antibiotics; keep the documented allergy and considered further allergy testing; or de-label the allergy at the provider's discretion. Patients with a documented penicillin allergy were excluded if they were pregnant, un-able to be contacted, or declined verbal consent. The primary objective of this study was to evaluate the proportion of patients with their penicillin allergies de-labeled.

RESULTS: In progress

CONCLUSIONS: In progress

8:30am – 8:45am C **Outcomes of Adjunct Diuresis in Heart Failure** Parthenon 2

Presenters: Abbygail Wilbourn

TITLE: Outcomes of Adjunct Diuresis in Heart Failure

AUTHORS: Abbygail Wilbourn, Alex Ewing, Andi Ray, and Lindsay Reulbach

OBJECTIVE: Identify diuretic potential of adjunctive agents for patients in acute decompensated heart failure on loop diuretic therapy.

SELF ASSESSMENT QUESTION: Which of the following are guideline recommended agent(s) for adjunct diuresis to loop diuretic therapy?

BACKGROUND: Loop diuretics are a mainstay of therapy in acute decompensated heart failure (ADHF) to promote euvolemia, decrease clinical congestion, and reduce length of stay. Current guidelines suggest sequential nephron blockade with the addition of adjunct agents to achieve goal diuresis based on previous studies that have evaluated the addition of metolazone, chlorothiazide, and acetazolamide to loop diuretics. This study aims to compare the diuretic effect of these three adjunct agents in a single study to address the lack of comparative literature currently available.

METHODOLOGY: This is a single center, retrospective review of patients with ADHF admitted between June 1, 2022 and May 31, 2023 who received at least one dose of acetazolamide, chlorothiazide, or metolazone in addition to loop diuretic therapy. The primary outcome of this study is net urine output in milliliters at 72 hours from the first administration of an adjunct diuretic agent. Secondary outcomes include length of stay, readmission within 7 days for heart failure-related problems, and change in weight from admission to discharge. Safety outcomes include the incidence of acute kidney injury, decrease in sodium, decrease in potassium, and change in bicarbonate during the study period.

RESULTS: This study found that there was a statistically significant difference in net urine output over 72 hours with a p-value of 0.002. This was complicated by a statistically significant difference in loop diuretic administration with a p-value of 0.030. The only secondary endpoint that reached statistical significance is the change in bicarbonate at 72 hours with a p-value of 0.008.

CONCLUSIONS: This study is unable to conclude a difference in net urine output between adjunct diuretic agents due to the confounding inequivalent amounts of loop diuretic administered. All three agents had comparable tolerability and incidence of AKI.

8:30am – 8:45am R **Antipsychotic Prescribing Practices in the Emergency Department** Olympia 2

Presenters: Jordan Spurling

TITLE: Antipsychotic Prescribing Practices in the Emergency Department

AUTHORS: Jordan Spurling, PharmD, Nick DeFilippo, PharmD, John Patka, PharmD, BCPS

OBJECTIVE: Understand the implications of implicit bias in prescribing practice in the emergency department

SELF ASSESSMENT QUESTION: What antipsychotic generation was used most frequently in this study?

BACKGROUND: Racial and gender healthcare disparities in the management of acute behavioral emergencies and other disease states have previously been described in the medical literature. There is literature documenting incidence of diagnosis with psychotic-spectrum disorder in African American patients at a rate of 2-6x the rates of their white counterpart. Furthermore White patients are more likely to be diagnosed with mood-spectrum disorder despite presenting with similar signs and symptoms leading to an increase in first-generation antipsychotic medication prescribing in African American patients. First-generation antipsychotic medications are associated with an increased frequency and severity of side effects including but not limited to extrapyramidal symptoms, hypotension, and QT-interval prolongation. This healthcare disparity has not yet been described regarding acute behavioral emergencies. There are site-specific factors that may influence the rates of chemical and/or physical restraints among patients of different races. The purpose of the study is to characterize the differences in race, age, and gender healthcare disparities when managing acute behavioral emergencies in the Grady Health System emergency department, including characterizing the rate of first- versus second-generation antipsychotic use with or without an adjunctive medication with their routes and doses and documented side effects.

METHODOLOGY: A retrospective chart review of adult patients receiving care from Grady Health System Emergency Department for an acute behavioral emergency receiving a parental antipsychotic between December 2022 and May 2023 will be identified through utilization of a pre-built EPIC workbench report. This report will allow for filtering of patients that were administered a parenteral antipsychotic specifically in the emergency department ordered by an emergency medicine provider. Patients who are identified will be assessed for inclusion in this study. Patients will be eligible for the study if they received one or more doses in the emergency department of: haloperidol lactate IM/IV, droperidol IM/IV, chlorpromazine IM, olanzapine IM, ziprasidone IM, fluphenazine hydrochloride IM. Data collected during this study will be demographic information (age, sex, race, ethnicity, height, weight, previous antipsychotic medication), emergency antipsychotic medication information, and ancillary medication information. The primary outcome of this study is to describe the prescribing practices of parenteral antipsychotics in the emergency department by percent use by age, race, and gender. Secondary outcomes include adverse drug events within 1 hour of antipsychotic administration, and other medications given as a chemical restraint within 1 hour of initial antipsychotic.

RESULTS: A total of 250 patients were screened for inclusion in this trial. 62 patients were identified for inclusion. Baseline demographics are listed in Table 1. The median age of the patients was 44 years old (IQR: 18-80). 35 of the patients were identified as male (56.5%). 43 of the patients identified as Black (69.4%), 17 identified as White (27.4%) and 2 identified as other (3.2%). The most common chief complaint was altered mental status (38.7%). For the primary outcome of non-haloperidol antipsychotic generation administration by race, first generation antipsychotics were used in 30 Black patients (48.4%) compared with 13 White patients (21%). Second generation antipsychotics were used in 13 Black patients (21%) compared with 6 White patients (9.7%). We had a larger percentage of black patients in our study however that is proportional to the patient demographics at our hospital. Of the parenteral antipsychotics used, black patients were prescribed first generation antipsychotics at an incidence of 48% and second generation antipsychotics at 21%. The remaining antipsychotics prescribed to white patients were first generation at an incidence of 21% and second generation at 10%. A total of 1006

patients were identified through EPIC that received haloperidol IV or IM. 696 of these patients were Black (69.2%) and 310 patients identified as White (30.8%).
CONCLUSIONS: This retrospective analysis including 62 patients represents a unique perspective on antipsychotic use in an urban, academic medical center emergency department. Results suggest that the majority of patients receiving parenteral antipsychotics were black. The majority of parenteral antipsychotics used were first generation.

8:30am – 8:45am R **Impact of Hyperchloremia on Incidence of Acute Kidney Injury in Patients with an Acute Ischemic Stroke Patients Receiving Intermittent Hypertonic Saline** Olympia 1

Presenters: Santonica Shagavah

TITLE: Impact of Hyperchloremia on Incidence of Acute Kidney Injury in Patients with an Acute Ischemic Stroke Patients Receiving Intermittent Hypertonic Saline

AUTHORS: Santonica Shagavah, Adam L. Wiss, Robin Tagatz

OBJECTIVE: To determine the impact of hyperchloremia on the incidence of acute kidney injury in Acute Ischemic Stroke patients receiving scheduled, intermittent 3% hypertonic saline within the first seven (7) days of admission

SELF ASSESSMENT QUESTION: Does the development of hyperchloremia in acute ischemic stroke patients receiving scheduled, intermittent 3% hypertonic saline have an effect on the incidence of AKI?

BACKGROUND: Malignant cerebral edema is a complication in the management and treatment of acute ischemic stroke patients leading to increased risk of morbidity and mortality. Hypertonic saline (HTS) is commonly used to treat cerebral edema and may induce hyperchloremia, an adverse effect associated with worse outcomes in neurocritical care patients. Although continuous infusion 3% HTS is commonly used in patients with acute ischemic stroke, current guidelines do not provide specific dosing recommendations for HTS in the management of cerebral edema in patients with an ischemic stroke. In addition, receipt of continuous infusion 3% HTS has been shown to be an independent predictor of hyperchloremia as well as acute kidney injury. The purpose of this study was to evaluate the incidence of acute kidney injury (AKI) in patients who develop hyperchloremia (serum chloride level greater than equal to 115 mmol/L) with the use of scheduled, intermittent 3 % HTS in comparison to patients who did not develop hyperchloremia (serum chloride level less than 115 mmol/L).

METHODOLOGY: This study was a single center, retrospective chart review of patients who received scheduled, intermittent 3% HTS at Ascension Saint Thomas Hospital West between January 1, 2022, and October 1, 2023. Acute ischemic stroke patients of at least 18 years of age with receipt of 3% HTS for at least 48 hours were included. Patients with baseline serum creatinine greater than 2 mg/dL, baseline chloride greater than 115 mmol/L, baseline sodium greater than 155 mmol/L, history of end stage renal disease on renal replacement therapy, pregnant or lactating and incarcerated patients were excluded. Patients were divided into two groups based on the maximum serum chloride within the first 5 days of admission: hyperchloremia (serum chloride greater than equal to 115 mmol/L) and nonhyperchloremia (serum chloride less than 115 mmol/L). The primary outcome was to determine the impact of hyperchloremia on the incidence of AKI following the administration of scheduled, intermittent 3% HTS within the first 7 days of admission utilizing the Acute Kidney Injury Network Criteria (AKIN). Secondary outcomes included the impact of hyperchloremia on intensive care unit length of stay (LOS), hospital LOS, and discharge disposition.

RESULTS: A total of 41 patients were included in our analysis of whom 32 were stratified into the hyperchloremia group and 9 into the nonhyperchloremia group. The primary outcome of AKI occurred in 6 (15%) patients, with 3 (7.3%) patients each classified as AKIN stage 1 and AKIN stage 2; 4 patients in the hyperchloremia group and 2 patients in the nonhyperchloremia group (P = 0.99). There were no statistically significant differences between the hyperchloremia and nonhyperchloremia groups in the intensive care unit LOS (6.5 vs 9 days; P = 0.317), hospital LOS (8 vs 12 days; P = 0.177), or discharge disposition (P = 0.299 vs. P = 0.711 vs. P = 0.99) reported as home, facility, and deceased/hospice, respectively.

CONCLUSIONS: In this study of acute ischemic stroke patients receiving scheduled, intermittent 3% HTS for the treatment of cerebral edema, we observed no statistically significant differences in rates of AKI, length of stay, or

mortality between those who developed hyperchloremia and those who did not. Future studies evaluating the effects of hyperchloremia in neurocritically ill patients should consider the method of HTS administration.

8:30am – 8:45am R **National Survey Assessing Enteral Opioids to Wean off Continuous Intravenous Opioids in Adults** Parthenon 1

Presenters: Aubrey Baker

TITLE: National Survey Assessing Enteral Opioids to Wean off Continuous Intravenous Opioids in Adults
AUTHORS: Aubrey Baker and Joeanna S. Chastain
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Critically ill adult patients requiring mechanical ventilation often depend on continuous intravenous (IV) opioids for analgosedation. Despite known risks associated with prolonged IV opioid use, guidelines lack specific recommendations for transitioning to enteral opioids during weaning. Research indicates that switching from IV opioids to enteral opioids reduces weaning time from mechanical ventilation. However, lack of familiarity, concerns about potential adverse events, and variability in pharmacokinetics of other enteral opioids, present challenges. This study aims to examine current practices employed for weaning critically ill adults off continuous IV opioids.
METHODOLOGY: A survey will be distributed via email using Research Electronic Data Capture (REDCap) to pharmacists that are members of American College of Clinical Pharmacy (ACCP) Critical Care Practice and Research Network (PRN) and Pain/Palliative PRN. The survey will target pharmacists primarily caring for critically ill adults in the United States to avoid international practice variations and ensure participant expertise. Incomplete responses will be excluded. The survey link will remain active for four weeks, with a reminder email sent one week before its closure. The primary objective is to describe current practice patterns for weaning critically ill adults off continuous IV opioids.
RESULTS: TBD
CONCLUSIONS: TBD

8:30am – 8:45am F **The effect of a labeled penicillin allergy on a health-system antibiogram** Athena C

Presenters: Logan Bradley

TITLE: The effect of a labeled penicillin allergy on a health-system antibiogram

AUTHORS: Logan Bradley, Katherine Weller, Christopher M. Bland, Susan Smith, Bruce M. Jones

OBJECTIVE: Understand the impact of penicillin allergies on antibiotic susceptibility rates

SELF ASSESSMENT QUESTION: Which of the following organisms showed a statistically significant difference in susceptibility between penicillin allergic and non-allergic patients?

A. E. coli B. P. aeruginosa C. K. pneumoniae D. S. aureus E. All of the above

BACKGROUND: Allergies to beta-lactams, such as penicillins, are over-reported by patients and frequently documented in the electronic health record, with rates ~10%. This can lead to broad-spectrum or less optimal antibiotics being prescribed, such as fluoroquinolones or carbapenems. The concern in penicillin allergic patients is selected resistance from higher use of fluoroquinolones and other non-beta-lactams; however, current data is lacking in this area. The purpose of this study is to determine how penicillin allergies affect resistance rates of various bacterial pathogens on a yearly hospital antibiogram.

METHODOLOGY: This was a retrospective, observational chart review of admitted patients in 2022 within a two-hospital community health system. A list of patients with a positive bacterial culture and penicillin allergy was computer-generated using structured query language server reporting and third-party software (MedMined). All isolate data was collected from the first isolate positive for each patient over a 12-month span in 2022 (January-December). Each patient that met the aforementioned criteria was included. The primary objective was to create 5 total antibiograms –A yearly antibiogram with subgroups created for penicillin or non-penicillin allergic, and then 2 created for penicillin allergic or non-penicillin allergic in the intensive care unit (ICU). The following data points were gathered: culture site & organism, institution and floor where culture was taken, admission and discharge date, specifics of penicillin allergy, susceptibility to antibiotics with minimum inhibitory concentration, and whether an infectious diseases consult was present on the visit. The primary outcome was to compare susceptible and non-susceptible (intermediate or resistant) isolates by individual organism susceptibilities in labeled penicillin allergic and non-allergic patients. A secondary outcome compared susceptibility of isolates in ICU patients in labeled penicillin allergic versus non-allergic patients.

RESULTS: There were 3,757 total patients included with 484 having a penicillin allergy (12.8%). For individual gram-negative pathogens, there was a statistically significantly lower susceptibility rate for ciprofloxacin (p less than 0.001), levofloxacin (p less than 0.001), and trimethoprim/sulfamethoxazole (p equals 0.002) in Escherichia coli in penicillin allergic (n=192) versus non-allergic patients (n equals 1,174). There was also a statistically significantly lower susceptibility rate for cefepime (p equals 0.015), gentamicin (p equals 0.006), levofloxacin (p equals 0.025), ciprofloxacin (p equals 0.023), and piperacillin/tazobactam (p equals 0.012) in Proteus mirabilis in penicillin allergic patients (n equals 32) versus non-allergic patients (n equals 176). In contrast, Klebsiella pneumoniae had a higher susceptibility rate with ceftriaxone (p equals 0.019) in penicillin allergic patients (n equals 69) versus non-allergic patients (n equals 468). No differences in susceptibility rates between penicillin allergic and non-allergic patients were observed in Gram-positive organisms. For the secondary outcome in ICU patients, similar results were seen in Escherichia coli with levofloxacin (p equals 0.016) and ciprofloxacin (p equals 0.016) having a lower susceptibility rate in penicillin allergic patients (n equals 11) versus non-penicillin allergic patients (n equals 47).

CONCLUSIONS: Limitations include a sample size of only one year and a varying number of individual isolates. Differences in susceptibility were observed in organisms with higher frequencies, with Escherichia coli and Proteus mirabilis having higher susceptibility with certain antibiotics in the non-penicillin allergic group. For ICU patients, a similar trend was observed with Escherichia coli for select antibiotics. Integration of penicillin allergy

data into antibiograms should be considered as it significantly affected susceptibility results within several Gram-negative organisms, including the ICU. Future studies with multiple years of isolate data are needed to evaluate less common bacteria.

8:30am – 8:45am Y **Budesonide Prophylaxis in Patients with Multiple Myeloma Undergoing Autologous Stem Cell Transplant** Athena A

Presenters: Lucy Gloe

TITLE: Budesonide Prophylaxis in Patients with Multiple Myeloma Undergoing Autologous Hematopoietic Stem Cell Transplantation

AUTHORS: Lucy Gloe, Alexandria Rakestraw, Amber Clemmons

OBJECTIVE: To determine if budesonide prophylaxis reduces the incidence of ES, defined by each of the existing criteria, for patients with MM after auto-HCT.

SELF ASSESSMENT QUESTION: Please state whether the following statement is true or false: There was a lower incidence of engraftment syndrome in patients with multiple myeloma undergoing autologous hematopoietic stem cell transplantation who received budesonide prophylaxis, as compared to those who did not receive budesonide prophylaxis.

BACKGROUND: Multiple myeloma (MM) is an incurable plasma cell malignancy and the second most common hematologic malignancy. Patients receive induction therapy with subsequent high-dose melphalan and autologous hematopoietic stem cell transplantation (auto-HCT), if eligible. An uncommon but serious complication that can occur post auto-HCT is engraftment syndrome (ES). Minimal studies have evaluated ES, which has been defined differently across the existing literature, such as in 2001 by Spitzer and colleagues, and in 2003 by Maiolino and colleagues. A recent study in 2021 by Dhakal and colleagues developed an alternative definition of ES as any one of the following criteria: noninfectious fever, rash, pulmonary infiltrates, diarrhea, and/or hepatic dysfunction. Patients had to be within 3 days prior to or 10 days after engraftment to meet this definition. This study also evaluated prophylactic budesonide concluding it significantly reduced the incidence of ES in patients with MM undergoing auto-HCT. Based on the results of the Dhakal study, our organization made a practice change in October 2021 to prescribe prophylactic budesonide starting day +5 until discharge in all patients with MM undergoing auto-HCT. To evaluate if this practice change is beneficial, a single-center retrospective chart review was conducted to determine and compare the incidence of ES as defined by Maiolino, Spitzer, and Dhakal criteria respectively, for patients who received budesonide prophylaxis compared to those who did not.

METHODOLOGY: This is a retrospective chart review study of patients with MM who received auto-HCT from January 1, 2017 through October 1, 2023. The following information will be collected from electronic medical records:

- Patient demographics (Karnofsky performance status, MM risk stratification score, transplant comorbidity index [HCT-CI] score, melphalan dose, CD34 cell count reinfused, use of plerixafor)
- Criteria for ES (pulmonary infiltrates, renal dysfunction, hepatic dysfunction, encephalopathy, fever, diarrhea, rash, edema, weight gain)
- Receipt of budesonide
- Receipt of steroids to treat ES, including agent, dose, and duration

The primary aim of this study was to characterize the incidence of ES by each criteria. The secondary aim of this study was to evaluate the incidence of ES by each criteria for those who received budesonide prophylaxis compared to those who did not.

8:30am – 8:45am P **Transition from Opioid Infusion to Bolus Administration After Comfort Care Protocol Implementation** Athena I

Presenters: Carson Cook

TITLE: Transition from Opioid Infusion to Bolus Administration After Comfort Care Protocol Implementation

AUTHORS: Carson Cook, Emily Goodwin, Lauren Caldwell, Jordan Austin

OBJECTIVE: Compare MME in end of life care patients in two ICUs before and after protocol implementation

SELF ASSESSMENT QUESTION: True or False: Utilizing a comfort care order set with bolus opioid dosing reduces MMEs and helps prevent diversion.

BACKGROUND: Opioids are a common pharmacological component of end of life care. Opioid continuous infusions are commonly utilized and titrated inappropriately leading to inadequately treated pain. Best practices recommended that opioid naïve patients begin with initial opioid boluses to determine tolerance before beginning a continuous infusion. This regimen aims to keep patients comfortable while minimizing complications and dosing variability associated with opioid continuous infusions. This study seeks to quantify the difference in milligram of morphine equivalents between patients who received continuous infusion compared to intermittent bolus dosing. Secondary outcomes include appropriate dose escalation of opioids and benzodiazepines after terminal extubation.

METHODOLOGY: This is a single center, retrospective, observational review utilizing hospital electronic records. Patients eligible for inclusion will be admitted to Medical Intensive Care Unit or Neuro Intensive Care Unit with a comfort care medication order for an opioid continuous infusion or bolus between January 1, 2022 and July 1, 2023. The primary outcome of this study is to compare milligram of morphine equivalents in patients who receive bolus dose morphine or hydromorphone compared to those who received an opioid continuous infusion at an academic teaching hospital. Secondary outcomes include assessing appropriate initial opioid selection and subsequent dose escalation as well as to assess the appropriateness of concomitant benzodiazepine use in this subset of patients. Finally, this study seeks to assess the fiscal impact of narcotic waste from opioid continuous infusion dosing by comparing the time on an infusion to the amount of narcotic wasted is the patient expired or discharged prior to completing the infusion. Descriptive statistics will be provided. Numeric data comparing the two groups that is normally distributed will be expressed as mean ± standard deviation, and data that is not normally distributed will be expressed as median [25th, 75th percentile]. Categorical data will be expressed as a count (percent). All data analyses will be performed using statistical software and evaluated at a 0.05 level or appropriate p-value.

RESULTS: When comparing milligram of morphine equivalents between pre and post groups, the median amount of MMEs in the post group was significantly lower than the pre group in pts who lived in the 3-6, 6-12, and 12-24 hour timeframes.

CONCLUSIONS: MMEs were significantly lower in the post protocol group for patients who lived $\geq$ 3 hours

8:50am – 9:05am N **Evaluation of awareness, training, and implementation of pharmacist-initiated hormonal contraception** Athena I

Presenters: Roshni Pattabiraman

TITLE: Evaluation of awareness, training, and implementation of pharmacist-initiated hormonal contraception

AUTHORS: Amanda Savage, Roshni Pattabiraman, Mollie Scott, Jessica Hudak

OBJECTIVE: Evaluate the facilitators and barriers to pharmacist-initiated hormonal contraception services

SELF ASSESSMENT QUESTION: What are the major motivations and barriers to implementing hormonal contraception services?

BACKGROUND: Approximately 45% of all pregnancies in the United States are unintended; unintended pregnancy disproportionately impacts women who are between 18-24 years old, are low-income, belong to minoritized groups, and/or did not complete high school. This further impacts women who live in “contraceptive deserts”, where access to hormonal contraception is restricted due to transportation, availability of patient-care services, and overall limited access to healthcare. In North Carolina, 637,430 women live in contraceptive deserts, while 90% of Americans live within 5 miles of a community pharmacy on average. As pharmacists are therefore a geographically accessible healthcare provider, pharmacist-led implementation of hormonal contraception services has the potential to mitigate these barriers, particularly in rural and underserved communities.

METHODOLOGY: Purposive sampling was used to recruit pharmacists in NC that reported being “contraceptive trained” to the North Carolina Board of Pharmacy. The pre-survey collected data on demographics of the pharmacy, pharmacist, and current status of hormonal contraception service implementation. Subsequent semi-structured interviews were conducted with a portion of these pharmacists to assess specific details around the facilitating factors and barriers to implementing this service in their pharmacies. This information was analyzed using descriptive statistics by the researchers to meet the objective of the study.

RESULTS: In progress

A total of 836 pharmacists in North Carolina completed the training provided by NCAP, and 573 of these pharmacists notified the NC Board of Pharmacy of being “contraceptive trained”. 40 pharmacists completed the pre-survey, and subsequently 27 were interviewed. Preliminary results show that 52% (n=14) had implemented hormonal contraception services in their pharmacy. The pre-survey results show that 81.5% of respondents practice in an independent community setting, 44.5% of the pharmacies are located in rural county, and 85.2% of respondents identify as female. Initial assessment of confidence in providing this service was highest among those who had implemented it. Next steps include inductive (open) coding by members of the research team, followed by thematic analysis to identify themes related to successes and barriers to implementation and additional resources to improve patient care and access.

CONCLUSIONS: TBD

8:50am – 9:05am M **Deprescribing Semi-Synthetic Opiates in Veterans with Altered CYP2D6 Metabolism Using PGx Testing** Athena G

Presenters: Lakesha Lock

TITLE: Deprescribing Semi-Synthetic Opiates in Veterans with Altered CYP2D6 Metabolism Using PGx Testing

AUTHORS: Lakesha Lock, Amber Jefferson, Jennifer Clark, Lindsey Cross

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The emergence of pharmacogenomic (PGx) testing grants providers the opportunity to prescribe or adjust medications based on patient's genetics. The Pharmacogenomics Testing for Veterans (PHASER) program is the pharmacogenetic testing program currently used within the Veterans Affairs (VA) system. The purpose of the project is to utilize PGx testing to identify the most appropriate medication based on the results of genetic testing and to determine how many pharmacist recommendations are accepted to adjust tramadol or semi-synthetic opiates due to PGx results.

METHODOLOGY: The project design of this study was a quality-improvement, prospective, cohort analysis. Veterans with a diagnosis of chronic or acute pain assigned to FAY PACT (Patient Aligned Care Team) 7, FAY PACT 10, and the Women's Health Clinic were identified by the VA Opioid Therapy Risk Report (OTRR). Veterans were required to have an active prescription for tramadol or a semi-synthetic opiate. Semi-synthetic opiates included hydrocodone, hydrocodone/acetaminophen, oxycodone, oxycodone/acetaminophen, and acetaminophen with codeine for this initiative. Exclusion criteria included Veterans that were pregnant, breastfeeding, or Veterans that had a history of a bone marrow or liver transplant. PACT Clinical Pharmacist Practitioners (CPPs) contacted Veterans via telephone to provide education on genetic testing and to obtain informed consent. Encounters were documented using the "CPP- PGx Pain Medication Screening Note." If the Veteran agreed to PGx testing, PACT CPPs entered an additional note titled "Pharmacogenomics Note" to order the PGx lab. Data collection started on August 1, 2023, and ended November 1, 2023. The primary outcome was the number of Veterans deprescribed tramadol or semi-synthetic opiates after the quality improvement initiative started. Secondary outcomes included the number of Veterans offered PGx testing, number of samples drawn, and the number of pharmacist recommendations after PGx testing.

RESULTS: Out of the 50 Veterans contacted by PACT CPPs, 30 Veterans were PGx tested and 20 were not PGx tested. Of the 20 Veterans that were not PGx tested, 8 failed to complete labs, 6 Veterans were determined ineligible or uninterested, 4 Veterans were unable to be reached via telephone, and 2 Veterans were deceased. Of the 30 Veterans PGx tested, PGx results showed 15 intermediate metabolizers, 14 normal metabolizers, and 1 ultra-rapid metabolizer. There were 16 recommendations to primary care providers based on PGx test results. No prescriptions were deprescribed based on PGx recommendations by PACT CPPs.

CONCLUSIONS: The Fayetteville NC VA Coastal Health Care System implemented PHASER PGx testing to utilize a Veteran's genetic makeup to select or modify a Veteran's opiate dose to minimize toxicity and increase efficacy. There were no prescriptions deprescribed during the trial period. A longer trial period of this performance improvement initiative is needed to see the potential benefits of a pharmacist-led initiative to deprescribe opiates. The PHASER program is a relatively new program and provider education on deprescribing based on PHASER results will be beneficial going forward.

8:50am – 9:05am M **Impact of pharmacy-led chronic care management of type two diabetes at a community health center** Athena H

Presenters: Marissa Pettit

TITLE: Impact of pharmacy-led chronic care management of type two diabetes at a community health center

AUTHORS: Marissa Pettit, Carrington Royals, Miranda McGee, Evie Floyd, P. Brandon Bookstaver, Reagan Barfield

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: In 2015, Centers for Medicare and Medicaid Services allowed for chronic care management (CCM) to be billed under the Physician Fee Schedule. Patients are eligible for CCM if they are enrolled in Medicare and have two or more chronic disease states, including, but not limited to, diabetes, hypertension, cardiovascular disease, and depression. For patients enrolled in CCM at Tandem Health, a federally qualified health center (FQHC) in rural South Carolina, the average A1c is uncontrolled at 8.5%. Of these patients, 20% have an A1c ≥ 10%. CCM offers pharmacists, as part of the interdisciplinary team, the opportunity to optimize patients on guideline directed medical therapy (GDMT) as indicated by the 2024 American Diabetes Association guidelines. There are few data available about the impact of CCM services on chronic disease metrics within a FQHC.

METHODOLOGY: This retrospective, multi-center, observational cohort analysis evaluated the impact of the newly implemented pharmacist-led CCM program in patients with type 2 diabetes mellitus. This study analyzed mean change in hemoglobin A1c in the pharmacist-led CCM group compared to patients not routinely followed by a pharmacist. The proportion of patients who achieved a hemoglobin A1c less than 7% was also assessed. Secondary objectives included to determine the proportion of patients placed on GDMT, proportion of patients who achieved blood pressure less than 130/80 mmHg, and proportion of patients who achieved individualized LDL goals. Descriptive statistics were used to summarize the data.

RESULTS: TBD

CONCLUSIONS: TBD

8:50am – 9:05am C **Effect of Dual Antiplatelet versus Single Antiplatelet Therapy on Bleeding Outcomes Following TAVR** Parthenon 2

Presenters: William Anderson

TITLE: Effect of Dual Antiplatelet versus Single Antiplatelet Therapy on Bleeding Outcomes Following TAVR

AUTHORS: Will M. Anderson, Caroline Anderson Childs, Kishan S. Patel, Brandon D. Beers

OBJECTIVE: Determine whether SAPT limits bleeding without sacrificing ischemic benefit and valve integrity.

SELF ASSESSMENT QUESTION: Does single antiplatelet therapy reduce bleeding compared to dual antiplatelet therapy after TAVR?

BACKGROUND: Transcatheter aortic valve replacement (TAVR) was originally reserved for patients at high risk for surgical complications, but eligibility has expanded to low- and intermediate-risk patients due to findings of the PARTNER trial series. As a result, the number of patients undergoing TAVR procedures in the United States has drastically increased by more than 850% between 2016 and 2019 among low- and intermediate-risk patients alone. Patients require lifelong antiplatelet therapy after TAVR to prevent thromboembolic complications that endanger the patient and the integrity of the replacement valve. The 2020 ACC Valvular Heart Disease guideline recommends single antiplatelet therapy (SAPT), with a provision for initial dual antiplatelet therapy (DAPT) for 3-6 months for patients at low bleeding risk. The 2021 European Society of Cardiology Valvular Heart Disease guideline recommends only SAPT. Cone Health changed their antiplatelet prescribing practice in November 2022 from DAPT to SAPT following TAVR procedure. The purpose of this study is to compare outcomes of antiplatelet regimens in all patients who underwent TAVR placement at Cone Health to assess whether DAPT and/or SAPT limits risk of bleeding without sacrificing ischemic benefit and valve integrity.

METHODOLOGY: This IRB-approved retrospective cohort study will identify patients with TAVR procedure between 2021-2023 at Moses H. Cone Memorial Hospital in Greensboro, North Carolina. Eligible patients are 18 years or older who underwent TAVR procedure and received antiplatelet therapy without concomitant need for anticoagulation. Patients will be reviewed at their TAVR procedure encounter and at ≥180 days utilizing electronic medical record review. Data collected will include age, sex, body mass index, serum creatinine, antiplatelet regimen within 30 days of TAVR procedure, bleeding events, ischemic events, and aortic valve pressure gradient ≥180 days after implantation. This data will be analyzed using the Chi-square test and descriptive statistics. The primary endpoint will include all Bleeding Academic Research Consortium (BARC) bleeding (minor or major) after TAVR. The secondary endpoints will evaluate ischemic events including stroke, transient ischemic attack, myocardial infarction, and valve deterioration as assessed by change in mean aortic valve pressure gradient at ≥180 days.

RESULTS: Sixty-six patients are included in the study. Six patients (18.2 percent) experienced BARC bleeding events (major and minor) in the pre-practice change DAPT cohort, three of which experienced major BARC bleeding events. Three patients (9.1 percent) experienced minor BARC bleeding events in the post-practice change SAPT cohort. Two patients, one in each cohort, experienced ischemic events, both of which were acute ischemic strokes. Thus far, three patients (9.1 percent) have experienced aortic valve deterioration as assessed by change in aortic valve pressure gradient in the DAPT cohort. No patients have experienced aortic valve deterioration in the SAPT cohort. Ten patients (four in the DAPT cohort, and six in the SAPT cohort) are still awaiting their follow follow-up 8-12 month echocardiograms for assessment of valve integrity.

CONCLUSIONS: There was more major BARC bleeding in the DAPT cohort. Both DAPT and SAPT were associated with similar rates of ischemic protection. There have been numerically more cases of valve deterioration in the DAPT cohort. SAPT has been found to preserve aortic valve integrity as there have been no cases of valve deterioration in its respective cohort. Final conclusions regarding DAPT versus SAPT's effect on preserving valve integrity are pending until ten patients' outstanding follow-up 8-12 month echocardiograms are

obtained. Overall, DAPT was associated with more major BARC bleeding and a greater incidence of aortic valve deterioration as assessed by change in aortic valve pressure gradient.

8:50am – 9:05am R **Evaluation of safety & efficacy outcomes in tenecteplase versus alteplase for acute ischemic stroke** Olympia 2

Presenters: Jenny Zhou

TITLE: Evaluation of safety & efficacy outcomes in tenecteplase versus alteplase for acute ischemic stroke

AUTHORS: Jenny Zhou

OBJECTIVE: Describe current modalities of stroke management based on guideline recommendations, explain differences in functional and safety outcomes between tenecteplase and alteplase, and identify future research opportunities to guide treatment of acute ischemic stroke.

SELF ASSESSMENT QUESTION: Based on the results of this study, should preference be given to tenecteplase or alteplase in selection of an thrombolytic for acute ischemic stroke?

BACKGROUND: Tenecteplase is a thrombolytic agent approved for fibrinolysis in acute ST-elevation myocardial infarction (STEMI) with growing use for acute ischemic stroke (AIS). Tenecteplase is a modified form of alteplase designed to provide a higher specificity for fibrin and decreased affinity for plasminogen activator inhibitor, culminating in additional benefits of a longer half-life, and advantageous administration parameters. In February 2022, Trident Health adopted tenecteplase following updated 2019 AHA/ASA guidelines citing tenecteplase as an alternative thrombolytic. While meta-analyses and comparative studies have been performed, there is lack of robust, large population data directly comparing tenecteplase to alteplase in US AIS populations. This study aims to compare safety and efficacy of tenecteplase to that of alteplase.

METHODOLOGY: Retrospective chart review will be conducted on patients from August 2020 to September 2023. Patients will be identified via the health system stroke quality database. Inclusion criteria includes age ≥ 18 years, diagnosis of acute ischemic stroke based on symptoms and confirmed on imaging, and receipt of tenecteplase or alteplase. Patients were excluded if lost to follow-up or 90 day functional score was unable to be determined. Data captured will include baseline characteristics defining age, sex, ethnicity, weight, antiplatelet use, and associated comorbidities. NIHSS score, and GCS score, additional interventions including thrombectomy, medication use including antiplatelet and anticoagulants, thrombolytic administration, length of stay, imaging findings, and in-hospital mortality were collected to assess safety, efficacy, and outcomes. The primary outcome is functional outcome evaluated with modified Rankin scale at 90 days. Secondary outcomes include treatment success based on NIHSS score and MRS at discharge. Safety and quality outcomes include rates of angioedema, hemorrhagic conversion, length of stay, door to needle time, and mortality.

RESULTS: Between August 2020 to September 2023, 314 patients were screened with 101 patients meeting inclusion criteria (tenecteplase n = 53, alteplase n = 48). Baseline characteristics were similar between groups. The primary functional outcome of 90-day MRS found no statistically significant difference between groups receiving tenecteplase and alteplase (2.42 vs 2.35, p = 0.89), however variance in MRS score was statistically significantly different (a = 0.003). Additionally, secondary outcomes were not found to be statistically significantly different with treatment success (47.2% vs 45.8%, p = 0.89) and discharge MRS (2.70 vs 2.15, p = 0.164). Length of stay, door-to-needle time, rates of mortality, hemorrhagic conversion, and angioedema were not statistically different between groups.

CONCLUSIONS: There was no statistically significant difference in outcomes between patients receiving tenecteplase and alteplase at our institution. Further large-scale studies are needed to fully assess differences between treatment modalities.

8:50am – 9:05am R **Implementation of Tenecteplase in the Treatment of Acute Ischemic Stroke in a Community Hospital** Parthenon 1

Presenters: Joshua Nida

TITLE: Implementation of Tenecteplase in the Treatment of Acute Ischemic Stroke in a Community Hospital

AUTHORS: Joshua Nida, Patrick Blankenship, Abby Bussey, Kyle Allmond, Madie Iman

OBJECTIVE: Assess the impact of the transition to tenecteplase on a community hospital's door-to-needle-time in addition to assessing adverse events and medication errors.

SELF ASSESSMENT QUESTION: Transitioning from alteplase to tenecteplase offers improvment in which area?

BACKGROUND: Blount Memorial Hospital (BMH), a community hospital with primary stroke accreditation, recently changed from alteplase to tenecteplase for the treatment of acute ischemic stroke. Tenecteplase has been incorporated within acute ischemic stroke guidelines and has shown comparable data in rates of functional outcomes, adverse effects, and mortality in recent literature. With the ease of administration of tenecteplase via intravenous push this should promote a more efficient process while utilizing less resources. Previous studies have shown tenecteplase improves door-to-needle-time (DTNT). The purpose of this study is to determine if utilizing tenecteplase reproduces improvement in DTNT in a community hospital.

METHODOLOGY: This is an IRB-approved, retrospective cohort study to assess the implementation of tenecteplase as fibrinolytic of choice for acute ischemic stroke in a community hospital. Electronic health record reports and facility specific stroke documentation were generated for a six-month time frame for use of alteplase and tenecteplase. The reports were reviewed to determine the impact of the transition from alteplase infusion to tenecteplase intravenous push 0.25 mg/kg (max 25mg) for safety and efficiency. The primary objective is to compare the DTNT for patients administered alteplase versus tenecteplase. Secondary objectives will include assessments of adverse effects and medication errors reported with fibrinolytic therapies. Other secondary objectives include DTNT less than 45 and 60 minutes, door-to-order time, and order-to-initiated time.

RESULTS: 44 patients were included in the final analysis (24 patients receiving alteplase and 20 patients receiving tenecteplase). Baseline characteristics between the two groups differed in mean age and NIHSS mean, but no difference was seen with NIHSS median. The primary outcome of DTNT in the tenecteplase group was eight minutes longer than the alteplase group when analyzing the mean and thirteen minutes longer when analyzing the median. The differences of the mean and median times were not statistically significant but are clinically significant due to the nature of urgency with fibrinolytic administration. Notable adverse outcomes were slightly higher with the transition (1 in alteplase group and 3 in the tenecteplase group), and the reported post-fibrinolytic hemorrhage was similar with one subarachnoid hemorrhage in each arm in addition to one parenchymal hemorrhage in the tenecteplase group. Angioedema occurred once only in the tenecteplase group. The mean door-to-order time was 65 minutes in the alteplase group and 75 minutes in the tenecteplase group. Ordered-to-administration was 16 minutes in the alteplase group and 14 minutes in the tenecteplase group. DTNT less than 60 minutes occurred in 7 of 24 patients (29%) in the alteplase group and 5 of 20 patients (20%) in the tenecteplase group. DTNT less than 45 minutes occurred 1 of 24 patients (4%) in the alteplase and 3 of 20 patients (15%) in the tenecteplase group.

CONCLUSIONS: BMH initiated tenecteplase as the fibrinolytic of choice for acute ischemic stroke management in August of 2023 after reviewing prior studies related to safety and efficacy. In addition to the cost savings, tenecteplase offers a simplified administration strategy utilizing less resources and in theory promoting quicker DTNT. Previous studies have shown significant improvement in DTNT, but this data was not reproduced with improvements at BMH. The DTNT median and mean both were increased in this study, but there are many factors that could have contributed to this outcome. BMH Emergency Department's physicians decide the initiation of a fibrinolytic rather than a dedicated neurologist, but the physician may consult Vanderbilt tele-neurology to assist with decision of fibrinolytic administration. The study recognized many barriers that included patient consent, ED physician's delayed decision, and utilization of tele-neurology that may have contributed to DTNT that are above the guideline recommended goals. Documentation was a limitation of this study as data was collected by a retrospective chart review. Due to the small sample size, primary and secondary outcomes statistical significance are unable to be drawn from this study. While conducting this study, BMH has placed a focus on DTNT for process improvements to achieve guideline recommended goals since the transition to tenecteplase had no impact on improving DTNT.

8:50am – 9:05am R **Survey of Pharmacists on Post-Rapid Sequence Intubation Analgosedation Practices** Olympia 1

Presenters: Alex Kwan

TITLE: Survey of Pharmacists on Post-Rapid Sequence Intubation Analgosedation Practices

AUTHORS: Alex Kwan, Neely Hudson, Ashley Jackson, Taylor Gregory, Christy Forehand

OBJECTIVE: At the conclusion of this presentation, the participant will be able to describe the variability in post-RSI analgosedation practices across the United States.

SELF ASSESSMENT QUESTION: True or False: The immediate post-RSI analgosedation method should be tailored to the patient and the agents utilized during RSI (Answer: True).

BACKGROUND: Rapid sequence intubation (RSI) is a method of securing the airway of a patient who is unable to effectively breathe on their own. The foundation of RSI is based on proper induction prior to paralysis and effective post-RSI management to reduce complications. Post-RSI analgesia and sedation initiation should be tailored to complement the pharmacokinetic profile of the sedative and neuromuscular blocking agents that were used during RSI. When using a long-acting paralytic such as rocuronium, there may be an increased risk for patient awareness during paralysis which is associated with negative psychological outcomes. Additionally, post-RSI analgesia and sedation can be delayed or given in insufficient doses when a long-acting agent is used, further increasing the risk of awareness during paralysis. On the other hand, excess post-RSI sedation should be avoided as it increases medication exposure, time to extubation, and hospital length of stay. Adequate analgesia first sedation (or analgosedation) in the immediate post-RSI period is necessary to minimize complications. At present, guidelines do not provide recommendations for how to protocolize post-RSI analgosedation, likely leading to variable post-RSI analgosedation practices. The purpose of this study is to survey emergency medicine and critical care pharmacists to characterize post-RSI analgosedation practices nationally.

METHODOLOGY: An 18-question, voluntary, anonymous electronic survey was distributed to critical care and emergency medicine pharmacists via email to the American College of Clinical Pharmacy Critical Care and Emergency Medicine Practice and Research Networks' listservs between January and February 2024. Trainees and pharmacists practicing internationally were excluded. The survey consisted of questions regarding respondent and practice site demographics, post-RSI analgosedation practices, and monitoring strategies. Participants selected approaches to post-RSI analgosedation that they both observe and recommend when either a short-acting paralytic or a long-acting paralytic is utilized during RSI. Responses were compared to characterize national trends in post-RSI analgosedation practices.

RESULTS: 202 survey responses were collected, however only complete surveys (n=150) were included in the data analysis. Of pharmacists surveyed, the median years of practice was 7.5 years. Area of practice was well distributed. 53% of pharmacists practiced in the emergency department while 41% of pharmacists practiced in the intensive care unit. The majority of pharmacists practiced at a community teaching hospital (41%), and 33% of pharmacists practiced at an academic medical center. Of pharmacists surveyed, 89% completed some form of post-graduate training program, 27% completed a PGY1, 61% completed PGY1 and PGY2, and 1% completed a PGY1, PGY2, and Fellowship. Regarding pharmacists preferred and pharmacists' observations of their providers preferred method to analgosedation when a short-acting paralytic such as succinylcholine is used during RSI, pharmacists method to analgasedation varied greatly, with the most preferred method being analgesia and

sedation concomitantly with continuous infusions initially (30%). This contrasted pharmacists' observations of providers preferring sedation first with continuous infusions initially (47%) or analgesia and sedation concomitantly with continuous infusions initially (33%). When a long-acting paralytic such as rocuronium is used during RSI, pharmacists preferences shifted to analgesia and sedation concomitantly with continuous infusions initially (51%). As for pharmacists' observations of providers preferred methods when rocuronium is used, this was overall unchanged with sedation first with continuous infusions initially (46%) or analgesia and sedation concomitantly with continuous infusions initially (40%). Lastly, pharmacists were pharmacists were asked if their institution had institutional guidelines or policies with recommendations regarding immediate post-RSI analgosedation management. Three fourths of Pharmacists surveyed responded that either their intuition did not have a guideline for immediate post-RSI analgosedation or if they did have such guideline, it did not provide a recommendation.

CONCLUSIONS: Pharmacists are more likely to recommend a patient tailored approach based on paralytic used during RSI. Three fourths of respondents noted a lack of institutional guidance regarding immediate post-RSI analgosedation strategies. Overall, this study contributes to the expanding body of research in an area where evidence-based guidance on the management of immediate post-RSI analgosedation is scarce.

8:50am – 9:05am F **Impact of MRSA Nasal PCR Screening on De-escalation of Anti-MRSA Therapy in Pneumonia** Athena D

Presenters: Kate Dorsten

TITLE: Impact of MRSA Nasal PCR Screening on De-escalation of Anti-MRSA Therapy in Pneumonia

AUTHORS: Kate Dorsten, Linda Tran, Bobby Helmer

OBJECTIVE: Identify the impact of MRSA nasal PCR screening on duration of anti-MRSA treatment for pneumonia

SELF ASSESSMENT QUESTION: What is one patient outcome that may see benefit when utilizing MRSA nasal PCRs?

BACKGROUND: IDSA/ATS's guidelines pertaining to community, hospital, and ventilator-acquired pneumonia recommend anti-MRSA therapy empirically for patients with risk factors of MRSA pneumonia; however, incidence of S. aureus pneumonia is uncommon, with some studies finding rates as low as 1-2% in community-acquired pneumonia.

De-escalation from anti-MRSA therapy proves a challenge as respiratory cultures are often difficult to obtain and unreliable. MRSA nasal polymerase chain reaction (PCR) swab is an alternative method to help rule out MRSA infection that results quicker than respiratory cultures and has a negative predictive value in pneumonia of greater than 98% for MRSA pneumonia.

University of South Alabama Health University Hospital made MRSA nasal PCR testing available to providers on March 27, 2023. Upon implementation, pharmacists were instructed to message providers who initiated linezolid or vancomycin with the indications of "pneumonia" or "sepsis/bacteremia" that have a respiratory source of infection and recommend ordering MRSA nasal PCR.

METHODOLOGY: This single center, retrospective, pre-post implementation IRB approved study reviewed patients 18 years and older who received intravenous (IV) vancomycin or linezolid with the documented indication of "pneumonia/respiratory infection" or "sepsis/bacteremia" due to a suspected respiratory source of infection who were admitted to an academic medical center during a three-month period before (pre-) and after (post-) implementation of the MRSA nasal PCR screening in April 2023. Patients were excluded if they received anti-MRSA therapy more than 48 hours prior to receiving the MRSA nasal PCR or if patients had other indications that warrant anti-MRSA therapy. Key study endpoints include the difference in duration of anti-MRSA therapy, frequency of acute kidney injuries, and number of vancomycin levels obtained between the two groups. The following data was collected: patient age, serum creatinine, immunosuppressive status, respiratory culture results, duration of IV vancomycin or linezolid therapy, number of vancomycin levels obtained, and hospital length of stay.

RESULTS: One hundred and fourteen patients were included in this IRB-approved study, with 66 patients included in the pre-PCR group and 48 patients in the post-PCR group, however of the post-PCR group, only 39 patients received a nasal PCR test. Duration of IV vancomycin or linezolid therapy was not significantly different between the two groups (mean rank of pre-PCR group 58.80, post-PCR group 55.71, p=0.622). If patients in the post-PCR group who did not receive PCR testing were excluded, there was still no significant difference between the two groups (mean rank of pre-PCR group 55.34, post-PCR group 49.04, p=0.306). There was no significant difference in number of vancomycin levels obtained (p=0.454), number of acute kidney injuries (p=0.545), or immunosuppression status (p=0.844). Statistical analysis included Shapiro-Wilk Test for normality, chi-square test, Mann-Whitney U, and independent-samples t-test.

CONCLUSIONS: There were no statistically significant differences in duration of anti-MRSA therapy, number of vancomycin levels obtained, or number of acute kidney injuries at a 400-bed academic medical center 3 months after MRSA nasal PCRs became available to order.

8:50am – 9:05am F **Short vs Long Antibiotic Duration for Gram-Negative Bacteremia in Immunocompromised Patients** Athena C

Presenters: Nicole Slain

TITLE: Short vs Long Antibiotic Duration for Gram-Negative Bacteremia in Immunocompromised Patients

AUTHORS: Nicole Slain Olivia Randazza Alex Taylor John Williamson Charles Hartis Michael DeWitt Mary Banoub

OBJECTIVE: Review available guidance for treatment duration for uncomplicated Gram-negative bacteremia

SELF ASSESSMENT QUESTION: What is the official IDSA recommend duration of therapy for uncomplicated Gram-negative bacteremia?

BACKGROUND: Historically, 14 days of treatment has been recommended for Gram-negative bacteremia (GNB). In recent years, many studies have evaluated shorter versus longer durations of antibiotic therapy specifically for uncomplicated GNB. Traditionally, these studies have focused on immunocompetent patients. The purpose of this study is to determine whether shorter courses of antimicrobial therapy for GNB in immunocompromised patients have an impact on clinical outcomes compared to longer antibiotic courses.

METHODOLOGY: This is a single-center, retrospective, observational matched cohort study spanning from July 2021 to August 2023. Patients were included if they were 18 years or older, hospitalized with GNB, and met specified immunocompromising criteria. ICD-10 codes were used to identify immunocompromised patients who were then cross referenced with blood culture reports. Shorter courses of antibiotics were considered 8 days or less, and longer courses were 10 or more days. The primary outcomes were all-cause mortality and antimicrobial failure at 90 days. The secondary outcomes were hospital readmission at 30 days, length of stay, incidence of *Clostridioides difficle* infections, total antibiotic days of therapy, and development of antimicrobial resistance at 30 days. Patients were separated based on type of GNB (Enterobacterales vs non-Enterobacterales) and matched in a one-to-one ratio based on age (+/- 10 years) and Pitt Bacteremia Score (+/- 1). Wilcoxon rank sum exact test, Pearson’s chi squared test, Wilcoxon rank sum test, and Fisher’s exact test were used to assess the primary and secondary outcomes.

RESULTS: There were 29 one-to-one matched pairs included in this study. Of these matched pairs, 28 (96.6) consisted on Enterobacterales infections. Most infections originated from the urinary tract, 16 (55.2) in the short course group and 20 (69.0) in the long course group. The primary outcome of all-cause mortality within 90 days occurred in 2 (6.9) patients in both the short and long course groups. The outcome of antimicrobial failure was also met for 1 (3.4) additional patient in the short course group as well as 2 (6.9) additional patients in the long course group.

CONCLUSIONS: Shorter courses of antimicrobial therapy for GNB in immunocompromised patients showed similar clinical outcomes compared to longer durations of therapy.

8:50am – 9:05am T **An Initiative to Optimize Inpatient Smoking Cessation** Athena B

Presenters: Luke Hentrich

TITLE: An Initiative to Optimize Inpatient Smoking Cessation

AUTHORS: Luke Hentrich, Danielle Dennis, Kellie Ball, Thaddeus McGiness, Andrea Franks

OBJECTIVE: Describe best practices for prescription of smoking cessation pharmacotherapy.

SELF ASSESSMENT QUESTION: Which of the following would be an appropriate recommendation for smoking cessation at discharge?

BACKGROUND: Hospitalization may increase receptivity to smoking cessation interventions through increased perceived vulnerability and access to healthcare professionals. In order to achieve optimized smoking cessation outcomes in the inpatient setting, it is key to identify if there are patient-specific characteristics that affect prescription rates of pharmacotherapy that aid in smoking abstinence. The purpose of this study was to identify predictors among tobacco smokers associated with successful discharge prescription for smoking cessation pharmacotherapy, including single or combination nicotine replacement therapy, bupropion, or varenicline.

METHODOLOGY: Patients admitted to a large, academic medical center from January 1, 2022 to December 31, 2022 were identified for a retrospective, cohort study. Inclusion criteria were patients at least 18 years of age, current smokers, and hospitalized for at least 72 hours. Exclusion criteria were death prior to discharge, patients who exclusively used chewing tobacco, and patients with no identified smoking status. The primary endpoint was the proportion of patients prescribed smoking cessation pharmacotherapy at discharge. Secondary endpoints included the proportion of patients prescribed combination nicotine replacement therapy during hospitalization and hospital readmission within 30 days for a pulmonary-related diagnosis. Statistical analysis included logistic regression to identify key variables positively or negatively affecting the prescription of smoking cessation pharmacotherapy.

RESULTS: 466 patient were included in the final analysis. 15% of patients presented for admission with a pulmonary diagnosis. 42% of patients received documented smoking cessation counseling prior to discharge. 6% of patients received smoking cessation pharmacotherapy at discharge. Among the 14% of patients re-admitted within 30-days, 10% of these patients were readmitted with a pulmonary diagnosis.

CONCLUSIONS: This study at an academic medical center demonstrated a key opportunity for pharmacists to optimize smoking cessation outcomes in the inpatient setting.

8:50am – 9:05am Y **Comparative Analysis of FLAG-Ida vs. CLAG-Ida +/- Venetoclax in Patients with Newly Diagnosed (AML)** Athena A

Presenters: Emily Adedugbe

TITLE: Comparative Analysis of FLAG-Ida vs. CLAG-Ida +/- Venetoclax in Patients with Newly Diagnosed (AML)

AUTHORS: Emily Adedugbe, Eva Karam, Melham Solh

OBJECTIVE:

SELF ASSESSMENT QUESTION: T/F: Increase in LFTs and total bilirubin is a common adverse effect associated with Cladrabine.

BACKGROUND: Acute myeloid leukemia (AML) is a heterogeneous hematologic malignancy characterized by the rapid growth of abnormal myeloid cells in the bone marrow. The induction phase of treatment aims to achieve a complete remission, characterized by the absence of leukemic cells in the bone marrow, thus improving patient outcomes and prognosis. In recent years, several induction chemotherapy regimens have been developed to enhance the effectiveness of treatment for AML. FLAG-Ida (fludarabine, cytarabine, granulocyte colony-stimulating factor, and idarubicin) and CLAG-Ida (cladribine, cytarabine, granulocyte colony-stimulating factor, and idarubicin) are two such protocols that have shown efficacy in inducing remission in AML patients. The purpose of the comparison is from the FLAG-Ida to CLAG-Ida switch during the nationwide fludarabine shortage. The addition of venetoclax, a B-cell lymphoma-2 (BCL-2) inhibitor, to these regimens, has shown promise in improving outcomes in AML patients.

METHODOLOGY: In this single-center retrospective study, patients with AML between 18 and 75 years old who received at least one cycle of FLAG-Ida or CLAG-Ida at Northside Hospital Atlanta’s inpatient BMT unit between January 1, 2022 and May 31, 2023 are included. Patients with relapsed/refractory AML have been excluded. This study analyzes the clinical efficacy including complete response rate (CR); the safety profile of each regimen including adverse effects, patient stratification based on age, cytogenetic abnormalities, and comorbidities; and the contribution of venetoclax to each regimen. The primary endpoint is the percentage of patients achieving complete remission post induction. Secondary endpoints include: infection rates, changes in liver function tests, total bilirubin, serum creatinine and time to count recovery of both ANC and platelets. This analysis will aid in determining the significance of induction therapy changes as a result of the fludarabine drug shortage along with evaluating possible long-term effects.

RESULTS: Preliminary results show no difference in CR rate for patients who received FLAG-Ida-Venetoclax compared to CLAG-Ida-Venetoclax (3 patients in FLAG-Ida-Venetoclax, 4 patients in CLAG-Ida-Venetoclax). Adverse effects including increases in LFTs, total bilirubin, and infection rates were higher in patients treated with FLAG-Ida-Venetoclax compared to CLAG-Ida-Venetoclax. 2 of 3 total patients in CLAG-Ida-Venetoclax group averaged a total bilirubin of 1.5 during treatment compared to average total bilirubin of 2.4 in FLAG-Ida-Venetoclax group.

CONCLUSIONS: The substitution of CLAG-Ida-Venetoclax still induces a complete remission in newly diagnosed AML patients and may have a better safety profile for treatment compared to FLAG-Ida-Venetoclax.

9:10am – 9:25am

Doxycycline compared to oral alternatives for the treatment of presumed and confirmed G-P BJIs

Athena C

Presenters: Joe Corbino

TITLE: Doxycycline compared to oral alternatives for the treatment of presumed and confirmed G-P BJIs
AUTHORS: Joseph Corbino, Tyler M, Sheetal K, Marcos C S, Bruce A, Rebecca A, Manish Patel
OBJECTIVE: Determine the efficacy and safety of doxycycline compared to oral alternatives for G-P BJIs.
SELF ASSESSMENT QUESTION: What category of adverse effects was doxycycline more associated with?
BACKGROUND: The OVIVA trial demonstrated that the use of oral antimicrobial agents with high bioavailability within one week of IV treatment initiation is non-inferior for the treatment of bone and joint infections compared to continued IV therapy. Additionally, oral therapy was found to significantly reduce rates of IV catheter complications and hospital length of stay. Only certain highly bioavailable oral options with coverage for gram-positive organisms, including methicillin-resistant Staphylococcus aureus (MRSA), were well studied in this phase III trial, such as trimethoprim/sulfamethoxazole (TMP/SMX) and linezolid, with doxycycline representing a small proportion. Pharmacokinetic studies have demonstrated the ability for these oral agents to achieve minimal inhibitory concentrations (MIC) of Staphylococcus in the bone. Particularly, linezolid and TMP/SMX exceeded their respective Clinical and Laboratory Standards Institute (CLSI) breakpoints and MIC90 values. Doxycycline achieves concentrations of 3 mcg/mL in the bone but may not reach concentrations in the upper range of what is considered susceptible according to the CLSI breakpoint (≤ 4 mcg/mL). Although linezolid and TMP/SMX penetrate the bone well, each is associated with adverse effects that may make long-term therapy difficult for the patient to tolerate when compared to doxycycline.
METHODOLOGY: A retrospective chart review of individuals ≥ 18 years old prescribed doxycycline or linezolid or TMP/SMX for the treatment of a presumed or confirmed gram-positive bone and joint infection within the Grady Health System between January 1, 2021 and June 30, 2022 was conducted. The composite primary outcome was suggested or performed amputation, operating room debridement, death from any cause, or re-initiation of antibiotics. Secondary outcomes include rate of primary therapy completion and incidence of adverse effects.
RESULTS: A total of 81 patients were included in the analysis (35 doxycycline and 46 linezolid or TMP/SMX). At nine months, the composite primary outcome occurred in 34.3% receiving doxycycline and 28.2% receiving linezolid or TMP/SMX (RR 1.21, p=0.28). Completion of the primary course of therapy was below fifty percent in both groups (40% vs. 47.8%, p=0.47). Incidence of adverse effects were similar between both groups (25.7% vs. 21.7%, p=0.67) with more laboratory abnormalities occurring in the linezolid or TMP/SMX group (2.9% vs. 13%, p=0.11).
CONCLUSIONS: Doxycycline represents an efficacious option for the treatment of gram-positive bone and joint infections with a favorable adverse effect profile when compared to alternative treatment options.

9:10am – 9:25am R **The Impact of a Walk-In Clinic Referral Process on Rabies Vaccination Emergency Department Visits** Parthenon 1

Presenters: Elly Glazier

TITLE: The Impact of a Walk-In Clinic Referral Process on Rabies Vaccination Emergency Department Visits

AUTHORS: Elly Glazier; L. Montana Fleenor; Ryan C. Dillon

OBJECTIVE:To assess if the implementation of a rabies vaccine follow up process decreases emergency department return visits and reduces costs to patients all while increasing compliance with vaccine regimen.

SELF ASSESSMENT QUESTION: Is it medically necessary for subsequent rabies vaccinations to be given in the emergency department or inpatient hospital setting? (Y/N)

BACKGROUND: Rabies is fatal without proper management, and though rabies is well controlled in the United States, it poses significant strain on the emergency department (ED). Proper rabies care is associated with high costs, complicated protocols regarding vaccine series, and multiple clinical encounters as the rabies vaccine is administered on multiple days over the course of 2-3 weeks. Due to low patient numbers and high medication costs, many specialty, retail, and primary care clinics do not provide rabies vaccinations. This lapse in care causes patients to return to the ED and endure the unnecessary cost of being seen by emergency providers. Prior studies have described various referral processes for subsequent vaccines to outpatient clinics but have observed limitations. At our institution, a referral process was implemented for a walk-in clinic located 0.6 miles from the ED open 7-days a week. The purpose of this study was to evaluate the results of this process improvement protocol.

METHODOLOGY: A retrospective pre- and post-protocol single center study was conducted. The intervention was the implementation of a referral protocol for subsequent vaccinations. Adults treated in the Adult ED at the study site were included while pre-exposure prophylaxis patients were excluded. The primary outcome of this analysis was the number of return ED visits for subsequent rabies vaccinations following the initial presentation. Secondary outcomes included full vaccine regimen compliance and potential cost savings to patients.

RESULTS: 231 patients were included in the data analyses. The average number of ED visits was 1.722 in the pre-cohort and 1.238 in the post-cohort (p=0.00042). 63.3% of patients were adherent and received the complete rabies vaccination series within the pre-cohort and 69.7% in the post-cohort. There were 0 documented rabies infections in both arms.

CONCLUSIONS: In this retrospective pre and post protocol study, implementation of walk-in clinic referral process in an adult ED reduced the number of ED visits per exposure and increased the incidence of vaccination regimen completion and compliance. Implementation of referral protocols presents as a favorable strategy in offloading unnecessary ED census in an overwhelmed healthcare system.

9:10am – 9:25am R **IMPACT OF EMPIRIC ANTIMICROBIAL REGIMENS IN ADULT PATIENTS WITH ESOPHAGEAL PERFORATION** Olympia 2

Presenters: Adam Owens

TITLE: IMPACT OF EMPIRIC ANTIMICROBIAL REGIMENS IN ADULT PATIENTS WITH ESOPHAGEAL PERFORATION

AUTHORS: Adam Owens, Benjamin Casey, Susan Publow, Chelsea Mitchell

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Esophageal perforations are full-thickness tears in the esophageal wall that require rapid diagnosis and treatment. Infections are a common complication of these perforations. Due to the risk of infectious complications, antimicrobial prophylaxis is routinely initiated in practice; however, there are currently no published guidelines that specify a preferred regimen. Given the lack of guideline-directed recommendations and inconsistencies in prophylactic regimens, we aimed to evaluate prophylactic antimicrobial regimens used for esophageal perforations and compare clinical outcomes for patients based on antimicrobial coverage.

METHODOLOGY: This was a single-center retrospective chart review. Patients were identified and included by ICD-10 diagnosis codes. Patients were excluded if: blood cultures were not drawn within 72 hours of antibiotic administration, antibiotics were not continued for at least 24 hours, they were pregnant or previously enrolled in the study, or they had a complicating etiology. The primary endpoint was the incidence of positive blood cultures within 168 hours from index event. Secondary endpoints include the incidence of positive cultures from alternative sources, frequency of alterations to antimicrobial coverage, duration of antimicrobials, discharge disposition and inpatient mortality rate between groups.

RESULTS: 1/20 blood cultures (5%) resulted with a pathogenic organism. 2/20 blood cultures (10%) resulted with contaminant organisms. 7/20 (35%) of alternative-source cultures were drawn and 4/7 (20%) of those cultures resulted with at least one pathogenic organism. At each time point, every group had at least one patient de-escalate therapy except for the antifungal coverage group. At hour 168 compared to hour 0, antipseudomonal coverage decreased by 32%, anti-MRSA coverage decreased by 50%, and antifungal coverage increased by 9%. Overall length of stay was an average of 14 ± 11 days with the shortest average length of stay in the antipseudomonal group (13.6 ± 11.3 days) and the longest length of stay in the anti-MRSA group (19.2 ± 13.4 days). Overall mortality was seen in 3/20 (15%) of patients and was comparable between groups.

CONCLUSIONS: Empiric anti-infective regimens seen where variable. Antipseudomonal coverage was the most commonly seen coverage between the groups even though less than half of the population had documented risk factors. While multiple different organisms were seen, a majority of organisms were typical esophageal flora. Length of stay and discharge disposition were comparable between group. Based on these results, we conclude that more narrow-spectrum antibiotics may be more appropriate empirically. Broad-spectrum antibiotics and empiric antifungal therapy may be more appropriate in patients with documented risk factors. A randomized control trial comparing groups is needed for a more definitive recommendation.

Esophageal perforations are full-thickness tears in the esophageal wall that require rapid diagnosis and treatment. Infections are a common complication of these perforations. Due to the risk of infectious complications, antimicrobial prophylaxis is routinely initiated in practice; however, there are currently no published guidelines that specify a preferred regimen. Given the lack of guideline-directed recommendations and inconsistencies in prophylactic regimens, we aimed to evaluate prophylactic antimicrobial regimens used for esophageal perforations and compare clinical outcomes for patients based on antimicrobial coverage.

9:10am – 9:25am G **Enoxaparin Dosing in Geriatric Trauma Patients** Athena J

Presenters: Emily Brackett

TITLE: Enoxaparin Dosing in Geriatric Trauma Patients

AUTHORS: Emily Brackett, Morgan Carhart, Lindsey Cooper, Carrie Ellison

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: To assess bleeding events with various enoxaparin dosing regimens for venous thromboembolism (VTE) prophylaxis in geriatric trauma patients.

METHODOLOGY: All patients ≥ 65 years of age admitted to Prisma Health Richland's trauma service were enrolled in a retrospective cohort study. By utilizing the trauma registry, patients were eligible for inclusion if the patient was admitted inpatient and received prophylactic dosing of enoxaparin for ≥ 24 hours between March 1, 2021, to December 31, 2023. Bleeding events were defined as receiving a blood transfusion and a drop in hemoglobin ≥ 2 g/dL over 48 hours or either an escalation in care or enoxaparin discontinuation due to bleeding. Secondary objectives evaluated the incidence of VTE on various prophylactic dosing, factor Xa levels, total blood transfused, and hospital length of stay. Comparisons were analyzed using various statistical tests including a chi-squared test, ANOVA, Kruskal-Wallis, independent t-test, or Mann-Whitney U test.

RESULTS: TBD

CONCLUSIONS: TBD

9:10am – 9:25am M **Evaluating effectiveness of Medication-Related Problem Identification Tool for pharmacy students** Athena H

Presenters: Falak Lalani

TITLE: Evaluating effectiveness of Medication-Related Problem Identification Tool for pharmacy students
AUTHORS: Falak Lalani, Beth Bryles Phillips, Chelsea Keedy, Russ Palmer, Devin Lavender
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Clinical reasoning is a core competency for pharmacy students. Although tools exist to help pharmacists prioritize patient care by acuity or intervention type, there are no applications designed to help learners develop their thought processes as they learn to navigate the complexities of electronic medical records.

The University of Georgia College of Pharmacy developed the Medication-Related Problem Identification (MRP-ID) tool to assist students with systematically working up patients and identifying medication-related issues. The tool was implemented in a skills-based course that develops patient assessment and work-up skills through complex patient cases. The purpose of this study is to assess the effectiveness of the MRP-ID tool in identifying and resolving medication-related problems.
METHODOLOGY: A descriptive quantitative research design is utilized. Midterm and final practical exam scores, problem identification, and development of pharmacotherapy plans and monitoring from the Class of 2022 (n=130), who never used the MRP-ID tool, will be compared to scores from the Class of 2025, who did use the MRP-ID tool. Similarly complex patient cases were used. Descriptive statistics will be used for demographic data. Chi-square analysis will be used for categorical variables. Student’s t-test will be used to compare means within the same and between different classes.
RESULTS: For the Class of 2022, the mean grades on the midterm and final practical exams were 68.7% and 50.2%, respectively. Performance was lower on the final practical exam compared to the midterm for the overall grade by 18.5% (95% CI -22.0% to -15.0%, p-value 0.001), problem prioritization by 16.6% (95% -20.0% to -13.2%, p-value 0.001), problem explanation by 14.6% (95% CI -18.2% to -11.0%, p-value 0.001), and pharmacotherapy plan development by 18.3% (95% CI -22.8% to -13.9%, p-value 0.001).

Class of 2025 data will be available at the end of the Spring 2024 semester.
CONCLUSIONS: This research is currently in progress.

9:10am – 9:25am M **Evaluation of Factors That Led to the Achievement of A1c Goal in Patients with Type 2 Diabetes** Athena G

Presenters: Kelly Gilbert

TITLE: Evaluation of Factors That Led to the Achievement of A1c Goal in Patients with Type 2 Diabetes

AUTHORS: Kelly Gilbert, Erin Pace, Naomi Yates

OBJECTIVE: Describe the impact of diabetes medication classes on A1c

SELF ASSESSMENT QUESTION: Which second-line diabetes medication classes have the greatest A1c-lowering effects, according to the literature?

BACKGROUND: Recent years have introduced changes to diabetes care, including new medication classes and glucose monitoring technology. Beginning 6/8/2022, clinical pharmacists at Kaiser Permanente Georgia (KPGA) began initiating select patients on continuous glucose monitoring (CGM) devices rather than remote glucose monitoring (RGM) devices or non-Bluetooth®-paired glucometers. Since these advancements, there has been a need to assess the impact on patients at KPGA. Thus, the purpose of this study was to compare the medication classes and glucose monitoring devices utilized by patients who achieved an A1c of less than 8% at KPGA to those who did not, to assess for differences between these groups.

METHODOLOGY: This was a retrospective descriptive study focusing on adult patients with type 2 diabetes mellitus (T2DM) who had an initial appointment with a clinical pharmacy specialist (CPS) at KPGA between 6/8/2022 - 5/1/2023. Patients who did not use a glucose monitoring device or did not have A1c data were excluded from this study. Patients included in this study were divided into two cohorts based on whether they achieved an A1c of less than 8% during the 6 months they were followed by a CPS. The primary objective was to assess for differences in the percent utilization of various diabetes medication classes and glucose monitoring devices between the two cohorts. The average change in A1c between the two groups was also analyzed as a secondary objective. Data was collected from KPGA's electronic health record and analyzed using descriptive statistics.

RESULTS: Between 6/8/2022 - 5/1/2023, there were 727 patients with an initial diabetes call made by a CPS. Of these patients, 357 achieved an A1c of less than 8% within 6 months and 370 did not. Baseline characteristics between groups were not significantly different, except for baseline A1c. There was a higher percentage of patients with a baseline A1c greater than 9% in the group of patients who did not achieve A1c goal compared to the group of patients who did achieve goal (59% vs. 34%). The only medication class that had a statistically significant difference in utilization rates between groups was insulin. A higher percentage of patients utilized insulin in the group that did not achieve an A1c less than 8% compared to the group that did achieve an A1c less than 8% (64% vs. 46%). Statistically significant differences in type of glucose monitoring device were also seen between groups. More patients utilized continuous glucose monitoring devices in the group of patients who did not achieve goal compared to those who did (14% vs. 7%, p=0.0044). Fewer patients utilized glucometers in the group of patients who did not achieve an A1c less than 8% compared to those who did (70% vs. 76%, p=0.0490).

CONCLUSIONS: This study found a higher percentage of patients on insulin and CGM devices in the group who did not achieve an A1c goal of <8% in 6 months. This was likely related to the higher percentage of patients with a baseline A1c >9% noted in this group. It was also discovered that patients who did not achieve goal of <8% had less of a decline in their A1c compared to those who achieved goal. This may have been due to additional factors that were not assessed, such as lifestyle factors or adherence to diabetes medications.

9:10am – 9:25am C **Development and implementation of a pharmacist-led antiplatelet stewardship service** Parthenon 2

Presenters: Christian Brown

TITLE: Development and implementation of a pharmacist-led antiplatelet stewardship service

AUTHORS: Christian Brown, Azur Eckley, Julianne Isaac

OBJECTIVE: To determine if 6-month DAPT applies to a patient’s elective PCI with drug-eluting stent\.

SELF ASSESSMENT QUESTION: Which patients are eligible for pharmacist-mediated de-escalation of DAPT therapy to 6 months?

BACKGROUND: Dual antiplatelet therapy (DAPT) is indicated for prevention of thrombotic events following stent deployment for various ASCVD-related conditions. The 2023 AHA/ACC Guideline for the Management of Patients with Chronic Coronary Disease now recommends 6 months of baseline DAPT for elective percutaneous coronary interventions (PCI). The purpose of this study is to define patient-specific factors warranting 6-month DAPT duration and to implement DAPT de-escalation for patients who have undergone elective PCI at the Ralph H. Johnson VAMC (RHJ).

METHODOLOGY: Elective stent cases between 11/2021 and 09/2023 were included, and cases were excluded for history of atrial fibrillation or anticoagulation therapy. De-escalation criteria were defined using PARIS scores and supplemented with expert opinion, DAPT scores, and Precise-DAPT scores. The clinical pharmacist would de-escalate DAPT for patients with single stent placements at low clotting risk, and cases with 2 or more stents or elevated clotting risk would be sent for cardiology consult to determine final DAPT duration.

RESULTS: Out of the total number of cardiac DES deployed at RHJ VAMC during the inclusion timeframe, 28/308 patients (9.1%) were eligible for review with 10/28 patients (35.7%) being eligible for pharmacist-directed DAPT de-escalation barring definitive duration having already been assigned by a cardiologist. Seven of these patients (70%) were successfully de-escalated by the pharmacist. Out of the 18 patients with cardiology consulted, 10 (56%) patients had DAPT de-escalated.

CONCLUSIONS: This study provides a scaffold for developing DAPT de-escalation criteria and drafting an agreement with the cardiology service to assign final DAPT duration for patients following elective PCI. Up to 71.4% of patients had DAPT de-escalated.

9:10am – 9:25am R **Evaluating the Impact of Oral Glyburide for Prevention of Severe or Malignant Cerebral Edema** Olympia 1

Presenters: Eresi Ojebe

TITLE: Evaluating the Impact of Oral Glyburide for Prevention of Severe or Malignant Cerebral Edema

AUTHORS: Eresi Ojebe, Leslie Roebuck, Phillip Mohorn

OBJECTIVE: To identify the role of glyburide therapy in severe edema prevention in high-risk patients

SELF ASSESSMENT QUESTION: What effect did glyburide therapy compared with non-glyburide therapy have on overall progression of cerebral edema?

BACKGROUND: Cerebral edema is an accumulation of intracerebral fluids that increases the net brain tissue water mass which can ultimately lower brain tissue perfusion and cause secondary brain injury. Severe cerebral edema is a life-threatening complication of CNS injury. Current therapy has focused on acute symptomatic management with hyperosmolar therapy such as hypertonic saline and mannitol. The sulfonylurea receptor 1 (SUR-1) is a key mediator of CNS cellular swelling via the transient receptor potential melastatin 4 channels (TPRM-4). SUR-1 and TPRM-4 receptor inhibition has been linked to decreased cerebral edema and hemorrhage progression. Glyburide is a SUR-1 receptor antagonist that may play a role in preventing cerebral edema and/or hemorrhage progression in patients posts stroke. Several reports in the literature of the use of glyburide for cerebral edema has been with IV formulation, thus, we hypothesize that similar results may be seen with oral formulations of glyburide.

METHODOLOGY: A retrospective, observational, cohort study design using chart review to collect data from the electronic health record from June 1, 2022 to June 30, 2023. Patients were excluded if initiated on oral glyburide for any other indication, and protected populations (less than 18 years old, pregnant, or incarcerated). The primary endpoint is progression of cerebral edema defined as development or worsening of edema. Secondary endpoints to be assessed include timing of initiation, incidence of hypoglycemic event and interventions, portion of patient requiring surgical intervention, portion of patients with new onset edema or progression of existing edema.

RESULTS: Higher perccentage of patient with cerebral edema progression in the glyburide group compared to non-glyburide group although this was not statistically significant (54.8% vs. 45.2%, p = 0.481). Significantly more patient in the glyburide group required subsequent hyperosmolar therapy compared to non-glyburide group (38.7% vs. 6.5%, p = 0.013). 80.6% of glyburide doses initiated greater than 10 hours after symptom onset.

CONCLUSIONS: TBD

9:10am – 9:25am F **Beta-Lactam Efficacy in Gram-negative Bacteremia for Obese versus Non-Obese Patients** Athena D

Presenters: Connor Dowling

TITLE: Beta-Lactam Efficacy in Gram-negative Bacteremia for Obese versus Non-Obese Patients

AUTHORS: Connor Dowling, Jamie Wagner, Andrew Watkins

OBJECTIVE: Determine if there is a difference in beta-lactam efficacy in obese versus non-obese patients.

SELF ASSESSMENT QUESTION: What is the most common causative organism for gram-negative bacteremia?

BACKGROUND: As obesity becomes more prevalent, its impact in healthcare cannot be understated. One of the many potential challenges with obesity is the effect it plays on optimal drug dosing, as changes in lean body mass and adipose tissue can lead to an increased clearance of medications. The purpose of this study is to determine if there is a difference in β-lactam efficacy, as well as time to clinical improvement, in obese versus non-obese patients with confirmed gram-negative bacteremia. Moreover, this project aims to help gain insight into a cornerstone of antimicrobial therapy for an ever-growing patient population in the United States and, more specifically, the South.

METHODOLOGY: This single-center, retrospective, cohort study included patients admitted to St. Dominic Jackson-Memorial Hospital from July 01, 2022 to July 1, 2023 who were aged ≥18 years, had blood cultures positive for gram-negative bacteria, received definitive β-lactam antibiotics, and had a recorded BMI. Patients were excluded if blood cultures were growing any non-gram-negative organisms. The primary outcome for this study is treatment failure as a composite of infection-related readmission within 30 days, persistent leukocytosis (white blood cell count ≥11 x 10^3 cells/μL more than 72 hours after initiation of β-lactam antibiotics), persistent fever (any temperature ≥100.4 °F more than 72 hours after initiation of β-lactam antibiotics), or a change in definitive β-lactam therapy. Secondary outcomes include duration of β-lactam therapy, all-cause readmission and mortality rates, length of stay, days of leukocytosis and fever, and escalation of β-lactam coverage.

RESULTS: This study included 125 patients (n=50 obese; n=75 non-obese) with gram-negative bacteremias. *Escherichia coli*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa* were the most prevalent organisms isolated in blood cultures. There was no significant difference found between obese and non-obese groups regarding antimicrobial selection, with piperacillin-tazobactam, ceftriaxone, and meropenem being the most common empiric agents and ceftriaxone, meropenem, and cefepime being the most common definitive agents. Treatment failure occurred in 50.4% of patients with 26 being obese and 37 being non-obese (52% *versus* 49.3%; $P = 0.77$). Moreover, there was no statistically significant difference between any of the individual components of the primary outcome. Likewise, no differences were observed between all-cause readmission, inpatient mortality, length of stay, and total days of antimicrobial therapy between the two groups.

CONCLUSIONS: Obese patients demonstrated no differences in treatment failure, inpatient mortality, or all-cause readmission when compared to their non-obese counterparts. Future studies can aim to assess potential impacts of obesity on oral β-lactam antibiotics as well as differences of antibiotics prescribed at discharge for obese *versus* non-obese patients.

9:10am – 9:25am Y **Rechallenging Carboplatin, Docetaxel, and Paclitaxel versus Switching Therapies in Cancer Patients** Athena A

Presenters: Nathan Martens

Title: Rechallenging Carboplatin, Docetaxel, and Paclitaxel versus Switching Therapies in Cancer Patients

Authors: Nathan Martens, Thomas Morris, Alexia Greene

Background: Hypersensitivity reactions (HSRs) are exaggerated or inappropriate immunologic responses to antigens or allergens. Carboplatin, docetaxel, and paclitaxel, widely used in treating various cancer types, exhibit a ~10% HSR rate in patients despite premedication efforts. Although there is currently limited data, a well-defined rechallenge strategy for HSRs can enhance patient tolerability during chemotherapy, reducing adverse events. This study's primary objective is to investigate managing patients through either rechallenging chemotherapy agents or switching to alternative therapies in an outpatient setting. An algorithm was created to provide standardization amongst clinicians to ultimately guide HSR management, addressing a critical need.

Methods: A single-center, retrospective, observational study was conducted at the FirstHealth Outpatient Cancer Center. The study population was comprised of cancer patients who experienced HSRs between January 1, 2021, and July 31, 2023. Patients were included if they were: 18 years or older, had received either carboplatin, docetaxel, or paclitaxel as part of their chemotherapy regimen, and had a documented infusion reaction during which the administration was temporarily halted and subsequently restarted on the same visit. Subjects were excluded if they experienced a true anaphylactic reaction, participated in a clinical trial and received a clinical trial drug within 30 days of HSR, or if they had been on immunosuppressive therapy within 30 days preceding their infusion. Patient’s demographics, primary cancer diagnosis, specific infusion medication administered, HSR grade, previously documented HSRs, and the overall time to event were obtained from the electronic medical record.

Results: There were 79 patients included in the IRB-approved study. There were 18 (22.8%) grade 1, 49 (62%) grade 2, and 12 (15.2%) grade 3 reactions evaluated. Amongst that population, 179 rescue medications administered, with the most popular being methylprednisolone 74 (93.7%) and diphenhydramine 68 (86.1%). For a grade 1 reaction, it is reasonable to temporarily halt or slow the infusion while the patient recovers from their side effects. For a grade 2 reaction, it is reasonable to halt the infusion and administer rescue medications based on the patient’s side effects. It is appropriate to consider an alternative therapy if the patient has a grade 2 reaction and experiences >2 symptoms from the medication. For a grade 3 reaction, it is best practice to switch to an alternative therapy unless their side effects rapidly resolve using rescue medications.

Conclusion: Current trends show dexamethasone dosing falls below previous literature. The low dosing of dexamethasone may be the rationale behind high methylprednisolone administration rates post infusion reaction. Based on the data, future steps include reevaluation of the current premedication protocol to align with the current literature. Once reevaluation of the premedication protocol occurs, a preset note will be created to alleviate documentation discrepancies and expedite appropriate grading of reactions.

Presentation Objective: Objective: To compare proper premedication and rescue medication protocols and evaluate commonalities amongst prior research to determine areas of improvement. Self-Assessment: T or F: According to current estimates, carboplatin has a higher prevalence of hypersensitivity reactions than paclitaxel.

9:10am – 9:25am 1 **Comparison of Rabbit Antithymocyte Globulin Dosing Using Ideal versus Actual Body Weight for Kidney Transplant Induction** Athena I

Presenters: Meghan Perry

TITLE: Comparison of Rabbit Antithymocyte Globulin Dosing Using Ideal versus Actual Body Weight for Kidney Transplant Induction

AUTHORS: Meghan Perry, Kwame Asare, Sally Sikes

OBJECTIVE: Compare the rate of biopsy-proven acute rejection between ideal and actual body weight dosing of rabbit antithymocyte globulin in kidney transplant induction

SELF ASSESSMENT QUESTION: Is the implementation of ideal body weight dosing of rabbit antithymocyte globulin for induction as efficacious as actual body weight dosing in preventing acute rejection in kidney transplant recipients?

BACKGROUND: Ninety-one percent of all kidney transplant recipients received induction treatment in 2021. Induction is a high degree of immunosuppression administered around the time of transplant with the goal of preventing early acute allograft rejection. Rabbit antithymocyte globulin (rATG) is one of the most common agents used for induction, however the optimal dosing regimen has not been determined and dosing varies by institution. In 2022, Ascension Saint Thomas Hospital West modified the transplant induction protocol to ideal body weight (IBW) instead of actual body weight (ABW) dosing of rATG. The purpose of this study was to compare rates of biopsy-proven acute rejection between IBW and ABW dosing of rATG for induction in kidney transplant recipients.

METHODOLOGY: This single-center, retrospective chart review included adult kidney transplant recipients receiving rATG 1.5 mg/kg for three consecutive doses using ideal or actual body weight for induction between January 1, 2021 and December 31, 2022. Patients were excluded if they had history of a prior transplant, received reduced doses for any reason other than rounding to the nearest vial size, underwent dual-organ transplant, received both dosing strategies, received greater or less than three doses, or were pregnant or incarcerated. The primary outcome was biopsy-proven acute rejection within 6 months of transplant. Secondary outcomes included delayed graft function, platelet and white blood cell reduction, documented infection, length of stay, all-cause readmission, graft survival, and mortality.

RESULTS: One hundred forty-nine patients were included (68 patients in the IBW group and 81 patients in the ABW group). Baseline characteristics were similar between groups. There was no significant difference between groups in the rate of biopsy-proven acute rejection within 6 months of transplant. The mean platelet reduction between the ideal and actual body weight groups was 36.2% and 43.6%, p=0.006, respectively. The IBW group experienced significantly less all-cause readmission at 30 days (p=0.032) and 1 year (p=0.0002) compared with the ABW group. All other secondary outcomes were similar between groups.

CONCLUSIONS: There was no significant difference in biopsy-proven acute rejection within 6 months of transplant in patients receiving rATG based on ideal or actual body weight dosing. Less thrombocytopenia and fewer all-cause readmissions were seen in the ideal body weight group.

9:30am – 9:45am ' **Clinical Pharmacist Service Impact on Emergency Department Antibiotic Administration** Athena I

Presenters: Tyler Williamson

TITLE: Clinical Pharmacist Service Impact on Emergency Department Antibiotic Administration

AUTHORS: Tyler Williamson, William Stewart

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Sepsis is a life-threatening condition and is the leading cause of death in hospitalized patients within the United States. The Centers for Medicare and Medicaid Services utilize the SEP-1 criteria, which requires administration of broad-spectrum antibiotics within 3 hours of sepsis recognition as a part of bundle one. Early identification of sepsis is essential, and guidelines recommend utilizing screening tools such as the Systemic Inflammatory Response Syndrome (SIRS) criteria to promptly identify sepsis. Baptist Health Lexington utilizes an embedded, modified-SIRS criteria screening tool within the EHR to screen patients on arrival in the emergency department. New literature has suggested that dedicated clinical pharmacist services in emergency departments are associated with a shorter time to administration of antibiotics in sepsis patients and more appropriate antimicrobial selection. Baptist Health Lexington implemented a new, decentralized clinical pharmacist service in the emergency department on August 17, 2023. In this service, a pharmacist will be present in the emergency department from 1100-2230 daily.

METHODOLOGY:

This is a single-center, retrospective, observational study approved by the local Institutional Review Board. Chart review consisted of adult patients with a positive sepsis screen in the emergency department who were subsequently admitted to the hospital between February 17, 2023, and February 17, 2024. The primary objective was to evaluate the difference in time to administration of first dose of antibiotics in patients presenting to the emergency department with a positive sepsis screen before and after implementation of a decentralized clinical pharmacist service. The secondary objectives included order turn-around time assessed via time from antibiotic order to administration and changes in usage rates of select broad-spectrum antibiotics (vancomycin, piperacillin/tazobactam, carbapenems, ceftriaxone, linezolid, cefepime, aztreonam). Inclusion criteria included the following: positive sepsis screen in the emergency department as identified through the integrated EHR screening tool, receipt of one or more antibiotics in the emergency department, and decision to admit to the hospital for further treatment. Patients were excluded if they received antibiotics prior to sepsis screening or were under 18 years of age, pregnant, or incarcerated. Baseline demographics recorded included age and sex.

RESULTS: Five hundred sixty-seven patients were identified with a positive sepsis screen, and 390 were included in the final data analysis. Two hundred twenty patients were included in the pre-intervention group, while 170 patients were included in the post-intervention group. The pre-intervention group had a mean time to administration of 128 +/- 113 minutes, with 75.4% of patients receiving antibiotics within 3 hours of positive screen. The post-intervention group had a mean time to administration of 108 +/- 82 minutes, with 81.8% of patients receiving antibiotics within 3 hours of positive screen. This showed a 20 minute reduction in mean time to administration, although statistical significance was not achieved (p less than0.053). Mean order turnaround time was 67 +/- 55 minutes in the pre-intervention group and 56 +/- 44 minutes post-intervention. The 11 minute reduction in order turnaround did reach statistical significance (p less than 0.034). For the pre-intervention group, vancomycin and piperacillin/tazobactam were utilized in 64.5% and 67.2% of patients, respectively, whereas in the post-intervention group they were utilized in 51.7% and 49.2% of patients. Ceftriaxone use increased substantially from 15.9% of patients in the pre-intervention group to 34.3% of patients in the post-intervention group.

CONCLUSIONS: The addition of a decentralized pharmacist service in the emergency department was not

associated with a significant reduction in time to administration of antibiotics in sepsis patients. There was a significant reduction in the order turnaround time of antibiotics. There was a significant reduction in the use of vancomycin and piperacillin/tazobactam, with a corresponding increase in ceftriaxone use.

9:30am – 9:45am M **Evaluation of Appropriate Glucagon Prescribing at a Large Rural Family Health Center** Athena G

Presenters: Haley Simkins

TITLE: Evaluation of Appropriate Glucagon Prescribing at a Large Rural Family Health Center

AUTHORS: Haley Simkins and Claire Austin

OBJECTIVE: Quantify number of patients in MAHEC FM prescribed glucagon and pinpoint areas of improvement.

SELF ASSESSMENT QUESTION: What appeared to be pharmacists' impact on frequency of prescribing glucagon in this setting?

BACKGROUND: Patients with diabetes who are on medications that directly lower blood glucose (ie. insulin and sulfonylureas) are at highest risk for severe hypoglycemic events which may lead to loss of consciousness, seizure, coma, and death if not treated quickly. It is recommended by the American Diabetes Association (ADA) that all patients deemed at high risk for hypoglycemia be prescribed a glucagon product to treat severe low blood sugars in the event of an emergency. However, in many settings, glucagon is still largely under-prescribed. This study's primary aim is to quantify the number of high-risk patients within the family medicine practice appropriately prescribed glucagon in an effort to pinpoint areas of improvement and future efforts. For purposes of this evaluation, we defined our high-risk population based on the current use of short/rapid-acting insulin, one of the criteria used by the ADA.

METHODOLOGY: This study was a retrospective chart review looking at all patients seen by a provider/pharmacist in the family medicine practice within the last 18 months who have a diagnosis of diabetes (type 1 or 2) and are currently taking at least 1 injection of short or rapid-acting insulin daily as a part of their medication regimen. Data points collected include: age, date of last office visit, date of last pharmacy clinic visit (if any), current daily number of insulin injections, presence of glucagon in the active medication list, and which product is currently prescribed (if any).

RESULTS: This review included 123 patients between the ages of 14 and 88 (mean age 51). Of the patients included, 81.3% were on multiple injections of insulin (average of 3.9 injections daily) and 18.7% were on insulin pump therapy. Patients’ last office visits were between 7/12/2022 and 1/29/2024, with 52.8% of patients having seen a pharmacist in clinic within the last 18 months. Only 22% of patients in this study had a glucagon product active on their medication list. However, of patients who had a pharmacy visit in the last 18 months, 29.2% have had a glucagon product prescribed. In patients who had not seen pharmacy, the rate of glucagon prescribing was lower at 13.8%. Of those that had glucagon prescribed, 51.9% received glucagon emergency kits, 37% Gvoke hypopens, and 11.1% other products (Zegalogue, Baqsimi, Glucagen hypokit).

CONCLUSIONS: Less than a quarter of patients within our family medicine practice defined by ADA criteria as high risk for severe hypoglycemia were appropriately prescribed glucagon for emergency treatment of severe low blood sugar. Of those who were, the majority were prescribed glucagon emergency kits, which are no longer favored by the ADA due to the availability of more user-friendly products which do not need to be reconstituted prior to use. Additionally, over half of the patients in this study had seen a pharmacist in clinic at least once, showing there is room for further education amongst our pharmacy team about severe hypoglycemia and the importance of making sure our patients have access to glucagon. However, the rates of glucagon prescribing were higher in patients that had seen pharmacy compared to those that had not. The results of this study provide valuable information which can be used to pinpoint outreach to patients still in need of glucagon, and start a conversation about appropriate prescribing amongst providers.

9:30am – 9:45am C **Glycemic Outcomes Following a Pharmacist-led Insulin Management Service in Cardiothoracic Surgery** Parthenon 2

Presenters: Sydney Kermeen

TITLE: Glycemic Outcomes Following a Pharmacist-led Insulin Management Service in Cardiothoracic Surgery

AUTHORS: Sydney Kermeen, Brittany White, Alicia Stowe, Christopher Wilson

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Perioperative hyperglycemia is a predictor of mortality in patients undergoing cardiothoracic surgery (CTS). Diabetic patients undergoing CTS have improved clinical outcomes, including improved hospital length of stay, risk of wound infections, morbidity, and long-term survival, when a target blood glucose level of less than 180 mg/dL is maintained. A pharmacist-led insulin management service was implemented to give clinical pharmacists autonomy to transition and adjust patients' insulin regimens to achieve glycemic control in the postoperative period. This study aimed to compare rates of postoperative glycemic control in CTS patients with diabetes before and after implementation of a pharmacist-led insulin management service.

METHODOLOGY: This single-center, retrospective, observational study has been approved by the Institutional Review Board. Adult patients with a hemoglobin A1c of 6.5% or greater who underwent CTS from January 2020 through July 2023 and received a minimum of 2 doses of basal insulin following perioperative insulin infusion were included. Exclusions included utilization of subcutaneous insulin pump during admission and postoperative diagnosis of diabetic ketoacidosis or hyperosmolar hyperglycemic state. Patients were categorized as the before implementation group if CTS was performed between January 1, 2020 and January 10, 2022 and as the after implementation group if CTS was performed between January 11, 2022 and July 31, 2023. There was also a subgroup analysis of patients with a hemoglobin A1c of 9% or greater. The primary outcome was percentage of measured capillary blood glucose concentrations within target range (70 to 180 mg/dL) for the first 7 days post-op or until discharge, if sooner. Secondary outcomes included average daily blood glucose, time to discontinuation of insulin drip, incidence of both hypoglycemia (41 to 69 mg/dL) and severe hypoglycemia (less than 40 mg/dL), incidence of hyperglycemia (greater than 180 mg/dL) requiring re-initiation of an insulin drip, length of hospital stay, and incidence of surgical wound infection within 3 months of CTS.

RESULTS: In progress

CONCLUSIONS: In Progress

9:30am – 9:45am R **EFFECTS OF PHARMACIST-DRIVEN INSULIN ADJUSTMENTS ON THERAPEUTIC BLOOD GLUCOSE DAYS IN ICU PATIENTS** Olympia 1

Presenters: Anna Beth Wommack

TITLE: EFFECTS OF PHARMACIST-DRIVEN INSULIN ADJUSTMENTS ON THERAPEUTIC BLOOD GLUCOSE DAYS IN ICU PATIENTS

AUTHORS: Anna E. Wommack, Marianne Ray, Jae Yook, Sarah Adams

OBJECTIVE: To list the factors that directly impact the precentage of blood glucose therapeutic days of patients being managed for hyperglycemia in the ICU.

SELF ASSESSMENT QUESTION: Which of the following factors negatively affect the likelihood of patient's having ≥ 50% blood glucose therapeutic days while being managed for hyperglycemia in the ICU.

BACKGROUND: Literature shows a strong association between hyperglycemia and poor clinical outcomes, including increased mortality, infection, and complications during hospitalization. Guidelines recommend targeting blood glucose (BG) levels between 140 and 180 mg/dL for all hospitalized patients. However, frequent changes in metabolic status and diet due to the acuity of illness or procedures require BG regimens to be modified accordingly especially for critically ill patients. Since there is currently no universally accepted insulin protocol for BG control, this study aims to evaluate the effects of standardized pharmacist BG management recommendations in critically ill patients.

METHODOLOGY: This study is an IRB-exempt, single-center, pre-post interventional study of adult patients admitted to the medical-surgical intensive care unit who required initiation or change in insulin therapy. An inpatient BG guide was created incorporating standardized approaches for insulin therapy initiation/adjustments. The pre-intervention group included 150 randomly selected patients between October 1, 2022 and March 31, 2023. The post-intervention group took place December 18, 2023 to March 2, 2024 and included patients who had at least one pharmacist-recommended insulin adjustment/initiation based on the BG guide. The primary outcome was the percentage of therapeutic BG days, defined as a day with at least 75% of point-of-care BG readings between 70 and 180 mg/dL, from 1200 after the first event to trigger an change in insulin therapy in the pre-interventional group and the first pharmacist-recommended change in insulin therapy in the post-intervention group until patient transfer. Secondary outcomes were the number of patients whose first BG reading was within or above the therapeutic range the day after adjustment, number of hypoglycemic episodes along with the day of occurrence after initiation or change of an insulin regimen, and pharmacist recommendation acceptance rate for the post-intervention group. Categorical data was analyzed using a Chi-Square test, and a Mann-Whitney U test was performed for continuous data to determine statistical significance of the findings.

RESULTS: A total of 85 patients were included: 63 in the pre-intervention group and 22 in the post-intervention group. Baseline characteristics were similar in both groups with the median age of 66 and the majority of patients being Caucasian. In the post intervention group, more patients were admitted with a category of shock (pre-intervention 10 [16%] vs post-intervention 12 [55%], $p<0.001$). No significant difference was found in the number of BGTD between the groups (pre-intervention 235 [48%] vs post-intervion 74 [45%], $p=0.478$). There were no differences between the groups in the number of patients with a BGTD on day one (26 [41%] vs 6 [27%], $p=0.243$), two (24 [39%] vs 9 [43%], $p=0.737$), or three (22 [38%] vs 7 [39%], $p=0.809$) or the number of hypoglycemic events (12 [19%] vs 5 [18%], $p=0.961$). The logistic regression predicted that patients with

diabetes (OR 0.249, 95% CI 0.076-0.811) or increased age (OR 0.962, CI 95% 0.926-0.998) were less likely to have BGTD ≥ 50% during their ICU stay.

CONCLUSIONS: There was no signficiant difference in the number of BGTD before and after the implementation of the standardized BG guide. Patients with diabetes were 75% less likely and patient with increased age were 4% less likely to have 50% or more BGTD during their ICU stay. This study was limited by a small sample size, short study period, and strict primary outcome criteria. Continuation of data collection is desired to further evaluate if there is a difference in the number of BGTD with the introduction of a standardized BG guide for critically ill patients.

9:30am – 9:45am R **Efficacy of Clonidine to Transition from Dexmedetomidine in Trauma-Surgical ICU Patients** Olympia 2

Presenters: Cortney Storey

TITLE: Efficacy of Clonidine to Transition from Dexmedetomidine in Trauma-Surgical ICU Patients

AUTHORS: Cortney Storey, PharmD

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Dexmedetomidine (DEX) is a preferred agent for intensive care unit (ICU) sedation due to its light sedative properties and lack of respiratory depression. However, it is more costly than other sedatives and has the potential to precipitate dexmedetomidine withdrawal syndrome (DWS) with higher doses and longer durations of infusion. Clonidine is a less expensive oral agent with a similar mechanism of action which may facilitate discontinuation of DEX without triggering withdrawal symptoms. The purpose of this study was to compare the incidence of the re-initiation of DEX in trauma-surgical ICU patients transitioning to a protocolized clonidine taper versus weaning off dexmedetomidine alone.

METHODOLOGY: This study was an institutional review board approved quasi-experimental study of patients admitted to the Trauma Critical Care Surgery Service at the University of Tennessee Medical Center. The study included patients who received DEX for at least 72 hours. The “Dexmedetomidine to Clonidine Transition Procedure for the Trauma-Surgical ICU” protocol was approved, and implementation of this protocol began on July 1, 2022. The included patients were split into 2 groups: pre-protocol and post-protocol. Patients in the post-protocol group were excluded if they were diagnosed with a severe traumatic brain injury (TBI) requiring intracranial pressure (ICP) monitoring or treatment, hemodynamic instability or the inability to take medications by mouth preventing clonidine use, uncontrolled sedation, or an incomplete taper of clonidine not following protocol. The primary outcome was the incidence of re-initiation of DEX. Secondary outcomes included: incidence of DEX withdrawal syndrome, duration of DEX infusion in hours, cumulative DEX dose, hospital and ICU length of stay.

RESULTS: Of the 250 patients screened, 29 patients met inclusion criteria: 14 pre-protocol and 15 post-protocol. Baseline characteristics were overall similar between groups. The median age was approximately 50 years old, and majority white males represented. The post-protocol group revealed a lower incidence of DEX re-initiation compared to pre-protocol (6.7% (n=1) vs. 21.4% (n=3); p 0.33). Although not statistically significant, the post-protocol group experienced a shorter median duration of DEX infusion (131.3 hours (IQR 95.9,180.8) vs. 133.6 (IQR 90.5, 270.7); p 0.88). The incidence of DWS was not statistically significant between groups with similar median heart rate, systolic blood pressure, and RASS between groups. The post-protocol group showed a median hospital length of stay that was 2 days shorter than the pre-protocol group (24.8 days (IQR 20.9, 33.2) vs. 26.4 (IQR 20.4, 29.1; p 0.91). The median ICU length of stay being 12.6 days (IQR 9.7, 15.7) vs. 12.6 days (IQR 8.2, 19.8) for the post-protocol and pre-protocol group, respectively. There were no statistically significant adverse events between groups. In the post-protocol group, 4 patients had one dose held due to hemodynamic parameters that prevented administration of the medication.

CONCLUSIONS: This small, pilot study evaluating the implementation of a protocolized clonidine taper for transitioning trauma-surgical ICU patients from DEX infusions demonstrate that the clonidine taper strategy numerically reduced the incidence of re-initiation of DEX, suggesting its efficacy in transitioning patients off the continuous infusion sedative. Further analysis with a larger sample size is necessary to better understand the implications of these findings.

9:30am – 9:45am R **Evaluation of a Midodrine Dosing Protocol for Vasopressor Weaning in Septic Shock** Parthenon 1

Presenters: Caitlin Edwards

TITLE: EVALUATION OF A MIDODRINE DOSING PROTOCOL FOR VASOPRESSOR WEANING IN SEPTIC SHOCK

AUTHORS: Caitlin Edwards, Nason Wise, Grace Barr, Mike Maccia

OBJECTIVE: Describe how a midodrine dosing protocol for vasopressor weaning in septic shock is beneficial.

SELF ASSESSMENT QUESTION: Does pharmacy involvement in transitions of care from the ICU reduce midodrine use at hospital discharge?

BACKGROUND: Patients presenting with shock to the intensive care unit (ICU) often require intravenous (IV) vasopressor use to maintain organ perfusion. Prolonged vasopressor use is associated with multiple negative outcomes including longer ICU length of stay, higher costs, increased mortality, higher utilization of IV lines, and greater incidence of adverse effects. Midodrine is an alpha-1 agonist commonly used off-label to facilitate IV vasopressor weaning in patients with septic shock. Despite its common use for this indication, there is no widely accepted dosing strategy for midodrine in septic shock due to conflicting data in available clinical trials. A new protocol was implemented in select medical ICUs across Cone Health sites outlining a standardized midodrine dosing strategy. The purpose of this study is to evaluate the efficacy and safety of a standardized midodrine initiation dose protocol for vasopressor liberation in septic shock.

METHODOLOGY: This was an IRB reviewed, determined exempt, single-center, multi-site, pre-post study evaluating outcomes over a three-year period from January 2021 to January 2024. Adult patients with a diagnosis of septic shock requiring norepinephrine for greater than or equal to 12 hours with an active order for midodrine were included in the analysis. Patients with hepatorenal syndrome, end-stage renal disease prior to admission, inpatient intermittent hemodialysis while on norepinephrine, or midodrine use prior to admission were excluded. The primary outcome was time from midodrine initiation to successful vasopressor liberation (defined as remaining off norepinephrine for greater than or equal to 24 hours). Secondary outcomes included ICU length of stay, ICU mortality, midodrine dose reduction or discontinuation due to bradycardia, incidence of rebound hypotension within 72 hours, midodrine titration strategies, and midodrine remaining active at ICU discharge as well as hospital discharge. The primary outcome was assessed using Wilcoxon Rank Sum and secondary outcomes were assessed utilizing descriptive statistics.

RESULTS: In the pre-intervention group, a total of 318 charts were evaluated and 77 met the inclusion criteria. In the post-intervention group, a total of 367 charts were screened and 70 met inclusion criteria. The average age in the retrospective group was younger at 61 years compared to 67 years in the post-intervention group. Each group was evenly matched regarding sex (48% male vs. 47% male respectively). In the post-intervention group, patients self-identified as 71.4% White or Caucasian, 20% black or African American, and 7.1% other or two or more races. The mean time from midodrine initiation to vasopressor liberation was 66.8 hours (IQR 64.7) in the post-intervention group vs. 68.6 hours (IQR 60) in the pre-intervention group, resulting in no statistically significant difference with a p-value of 0.6654. The most common starting dose of midodrine was 10 mg three times daily in both groups; however, a large portion of patients were started on a lower dose (2.5 or 5 mg three times daily). Midodrine use at hospital discharge was significantly decreased in the post-intervention group at 20% vs. 58.4% in the pre-intervention group (p-value <0.001).

CONCLUSIONS: A standardized midodrine dosing protocol for vasopressor weaning in septic shock did not result in a reduction in time to vasopressor liberation. However, pharmacist involvement in transitions of care significantly reduced midodrine use at hospital discharge.

9:30am – 9:45am F **Evaluation of Pharmacist-Driven Penicillin Allergy Reconciliation** Athena C

Presenters: Caitlyn Jerkins

TITLE: Evaluation of Pharmacist-Driven Penicillin Allergy Reconciliation

AUTHORS: Caitlyn Jerkins, Tyler Baumeister, Tracey Bastian

OBJECTIVE: Identify appropriate patients to undergo pharmacist-driven penicillin allergy reconciliation using a direct challenge approach.

SELF ASSESSMENT QUESTION: Which of the following allergy history characteristics would make a direct challenge approach inappropriate?

BACKGROUND: Penicillin allergy is one of the most widely reported drug allergies in the United States with approximately 10% of the population having a penicillin allergy listed on their medical record. This limits the use of preferred β-lactam agents, resulting in increased adverse drug events, like Clostridiodes difficile infections and increased antibiotic resistance. Allergy reconciliation increases the use of preferred agents and improves patient outcomes when antibiotic therapy is necessary. The purpose of this study is to assess the impact of pharmacist-driven penicillin allergy reconciliation in a community hospital using a direct challenge approach.

METHODOLOGY: This single-centered, retrospective study evaluated patients who underwent penicillin allergy reconciliation by the stewardship pharmacist, identified using the hospital's clinical surveillance software. The primary objective is to evaluate the percentage of patients that were de-labeled using the penicillin allergy reconciliation protocol. Secondary objectives include: method of direct challenge, percentage of patients whose antibiotic therapy was optimized as a result of the challenge, 30-day readmission rates and cost savings in patients requiring antibiotic therapy at the time of allergy reconciliation. Secondary safety outcomes include incidence of adverse or allergic reaction related to direct challenge and adverse drug events related to antibiotic therapy. All data obtained was analyzed using descriptive statistics and reported as percentages when appropriate.

RESULTS: A total of 46 patients underwent an allergy reconciliation and were included in the analysis. Of those 46 patients, 29 patients (63.1%) were deemed appropriate for a penicillin challenge dose and 10 patients (21.7%) were de-labeled without the need for a challenge dose based on allergy history. Penicillin allergy was de-labeled in 97.4% (38/39) patients who did not require a penicillin skin test or allergy referral. Oral doses were used in 79.3% patient challenges. A total of 24 patients out of the 38 who had undergone a successful challenge required antibiotic therapy during their admission; 17 of those 24 patients (70.8%) were able to have their therapy optimized with use of a penicillin class medication after the challenge occurred. A cost savings of approximately $19 per patient was noted in 9 patients who received penicillin class medications while inpatient. Only one patient reported a mild adverse or allergic reaction after administration of the challenge dose. No severe adverse or allergic reactions were reported. Additionally, no adverse reactions were noted in response to the use of alternative broad-spectrum antibiotic therapy.

CONCLUSIONS: Pharmacist-driven allergy reconciliation is an effective and safe method of de-labeling penicillin allergies in hospitalized patients. The availability of on-site penicillin skin testing would increase the ability to reconcile penicillin allergies, but may not be a cost-effective intervention as more than 80% of patients can undergo direct challenges safely. The direct cost savings associated with reconciliation of penicillin allergies may be minor, but it is important to consider indirect cost savings such as adverse effects secondary to prolonged use of alternative broad-spectrum antibiotics, or treatment failure secondary to increased antibiotic resistance.

9:30am – 9:45am F **Evaluation of Surgical Antimicrobial Prophylaxis Appropriateness in a Medium-Size Hospital** Athena D

Presenters: Caitlyn Brooke Coffelt

TITLE: Evaluation of Surgical Antimicrobial Prophylaxis Appropriateness in a Medium-Size Hospital

AUTHORS: Brooke Coffelt, Rebecca Horne, Caitlin Thompson

OBJECTIVE: Identify areas of non-compliance to HCA's Surgical Antimicrobial Prophylaxis Guidelines

SELF ASSESSMENT QUESTION:

BACKGROUND: Surgical site infections (SSIs) represent a significant, preventable healthcare burden contributing to increased patient morbidity, prolonged hospital stays, and elevated healthcare costs. Surgical antimicrobial prophylaxis (SAP) is a crucial preventive measure to reduce the incidence of SSIs and improve patient outcomes. This study aims to assess the appropriateness of SAP practices in a medium-sized, small metropolitan hospital with the intent to optimize patient outcomes and antibiotic utilization.

METHODOLOGY: A retrospective analysis of surgical cases performed in the hospital over a three-month period will be performed. Electronic medical records will be reviewed to identify the types of surgeries, patient demographics, and SAP administration details. SAP appropriateness will be evaluated based on adherence to established guidelines, including drug choice and dosing, timing of administration, redosing of antimicrobials, and duration of prophylaxis. The incidence of SSIs among the study population will be assessed, and any intervention necessary to improve guideline adherence will be implemented in the Spring of 2024. An educational in-service presentation will be given to providers and relevant clinical staff regarding any intervention implemented to increase compliance with current evidence-based guidelines regarding post-operative antimicrobial prophylaxis. A post-intervention data analysis will be done to assess the outcome.

RESULTS: TBD

CONCLUSIONS: TBD

9:30am – 9:45am T **Efficacy of Parenteral Lead-in Anticoagulation for Venous Thromboembolism in Extremes of Body Weight** Athena B

Presenters: Amy Odum

TITLE: Efficacy of Parenteral Lead-in Anticoagulation for Venous Thromboembolism in Extremes of Body Weight

AUTHORS: Amy Odum, Dustin Bryan, Serina Tart

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Standard of care treatment for venous thromboembolic (VTE) events usually includes parenteral anticoagulation initially, followed by oral loading doses of anticoagulation. In practice, some clinicians may shorten the oral loading dose duration based on the number of days a parenteral agent was given during admission, which is referred to as a lead-in dosing strategy. Recent observational studies have suggested both the safety and efficacy of utilizing a lead-in dosing strategy for patients transitioning from parenteral anticoagulation to oral anticoagulation for the treatment of VTE. The effects of shortening the oral loading dose duration in patients with extremes of body weight is unknown. The purpose of this study was to compare the lead-in dosing strategy versus the full oral loading dose strategy to identify increased risk for recurrent VTE or any bleeding in patients with extremes of body weight.

METHODOLOGY: Adult patients hospitalized at Cape Fear Valley Medical Center (CFVMC), who had extremes of body weight, that received parenteral anticoagulation for venous thromboembolism were retrospectively reviewed in this single-center cohort study. Extremes of body weight were defined as BMI ≤ 18.5 kg/m2 or weighing ≤ 60 kg or those with a BMI ≥ 30 kg/m2 or weighing ≥ 120 kg. The primary endpoint was to compare the percentage of patients with extremes of body weight experiencing a recurrent VTE or any bleed within 30 days of initial event with lead-in dosing strategy compared to full oral loading dose strategy.

RESULTS: 85 patients met inclusion criteria with 2 patients in the lead-in dosing group and 83 patients in the full oral loading dose group. Due to the low number of patients in the lead-in group, we were unable to compare the effects of utilizing a lead-in dosing strategy to full oral loading dose strategy in patients with extremes of body weight. Descriptive statistics were subsequently used to determine how the results of this study can be applied to clinical practice. Of the 85 patients included, 80 patients (94.1%) were transitioned to apixaban while only 5 patients (5.9%) were transitioned to rivaroxaban. The mean BMI and weight in this cohort of patients was 44.3 kg/m2 and 131.7 kg, respectively. Any bleeding events occurred in 3 patients who received apixaban and 1 in the rivaroxaban group. Recurrent VTE occurred in 2 patients that received apixaban and 0 patients that received rivaroxaban.

CONCLUSIONS: A major limitation of this study was the lack of an adequate sample size in the lead-in group to compare to the full oral load group. Because of this limitation, the effects of shortening the duration of oral anticoagulation in patients with extremes of body weight remain unclear and will require further investigation. While the results of this study are descriptive in nature, this study provides further evidence to support the use of DOACs in patients who are morbidly obese as most patients did not experience a recurrent VTE.

9:30am – 9:45am E **Evaluation of a Multidisciplinary Pediatric Resuscitation Educational Program (The PREP Study)** Athena H

Presenters: Mary Katherine Giles

TITLE: Evaluation of a Multidisciplinary Pediatric Resuscitation Educational Program (The PREP Study)

AUTHORS: Mary Katherine Giles, Laura Hagan, Corinne Murphy, Kara Phillips

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Pediatric cardiopulmonary arrests are rare and are associated with low survival rates and poor outcomes. Because of the infrequency of these events, healthcare providers often lack the confidence and preparedness to perform high-quality resuscitation efforts and maintain CPR skills. To enhance pediatric code education and provider confidence, a multidisciplinary pediatric code committee at Piedmont Columbus Regional Midtown was formed in April 2023 to implement an educational program focused on all components of pediatric resuscitation. This committee consists of a pediatric hospitalist, pediatric nurse practitioner, pediatric nurse clinical manager, pediatric clinical pharmacist, pediatric nurse educator, and respiratory care director. The committee sought to improve pediatric code response through team participation in mock codes and hands-on skills labs. The committee utilized scoring tools, surveys, and assessments to evaluate adherence to AHA guidelines, team dynamics, provider confidence, and knowledge of code medications. The objective of this study was to assess the impact of a multidisciplinary pediatric resuscitation educational program by evaluating for improvement in AHA guidelines and team dynamics during mock codes, provider confidence, and provider knowledge of pediatric code medications.

METHODOLOGY: This study is an observational quality improvement evaluation of a multidisciplinary pediatric resuscitation educational program at Piedmont Columbus Regional Midtown from August 2023 to April 2024. Surveys and assessments that were collected by the committee as part of their quality improvement process were compiled and analyzed to assess for the impact of education on pediatric code response and provider confidence. The scores from mock codes held in September 2023, January 2024, and March 2024 were used to test for improvement in pediatric code response. To evaluate improvement in provider confidence and knowledge of pediatric code medications, data from the pre- and post-skills lab surveys and assessments were compared. Information gathered about participant discipline and experience was used to describe the provider population that participated in the initiative.

RESULTS: In progress

CONCLUSIONS: In progress

9:50am – 10:05am C **Impact of Perioperative Intravenous Acetaminophen on Opioid Requirements Post-Cardiothoracic Surgery** Parthenon 2

Presenters: Rachel Robinson

TITLE: Impact of Perioperative Intravenous Acetaminophen on Opioid Requirements Post-Cardiothoracic Surgery

AUTHORS: Rachel Robinson, Nathan Wayne, Aaron Chase, Vijay Patel, Ankit Jain, Akbar Herekar, Ashley Taylor

OBJECTIVE: Determine whether perioperative intravenous acetaminophen reduces opioid requirements and associated adverse effects post-cardiothoracic surgery requiring cardiopulmonary bypass.

SELF ASSESSMENT QUESTION: True or False: Patients who received IV acetaminophen had lower opioid requirements postoperatively compared to those who did not.

BACKGROUND: In patients undergoing cardiothoracic surgery (CTS) requiring cardiopulmonary bypass (CPB), reduced splanchnic blood flow may lead to reduced absorption of oral medications, necessitating administration of medications via parenteral routes. Opioids are commonly employed in postoperative multi-modal pain regimens, and are associated with various adverse effects. Intravenous (IV) acetaminophen (IV APAP) has been shown to reduce postoperative opioid requirements in some surgical populations; however, there is limited data to support its use in the CTS population, which may have a higher risk for reduced oral absorption compared with other surgical subsets, which can be attributed to CPB. This retrospective chart review was designed to determine whether perioperative IV acetaminophen would reduce postoperative opioid requirements in patients undergoing cardiothoracic surgery requiring CPB (CTS-CPB).

METHODOLOGY: This propensity-matched, retrospective chart review included adult patients undergoing CTS-CPB who were expected to be extubated within 24 hours postoperatively. This was a pre- and post-analysis before and after implementation of one dose of IV APAP perioperatively in all patients undergoing CTS-CPB. The primary outcome was opioid requirements in the first 24 hours [morphine milligram equivalents (MMEs)]. Secondary outcomes included opioid consumption (MMEs) in the first 6 hours, proportion of patients extubated at 6 and 24 hours, time to extubation, incidence of ileus, time to diet ordered, time to first bowel movement, and pain scores within the first 24 hours postoperatively.

RESULTS: After propensity matching, 80 patients were included in each arm. Median age was approximately 65 years, with CABG being the predominant surgery type in both groups. Median pump time was similar between groups and was between 90-100 minutes. Significantly more patients in the IV APAP group received gabapentin (86.2% versus 23.8%) and methocarbamol (40% versus 21.2%) as part of a multimodal pain regimen. The median dose of oral acetaminophen in the first 24 hours was significantly higher in patients who received IV APAP (3004 mg versus 2472 mg) than in those who did not. The primary outcome of total MMEs in the first 24 hours postoperatively was 20.8 in the IV APAP group compared with 31.4 in in the no IV APAP group (p=0.008). This difference was also seen in the first 6 hours postoperatively [3.8 versus 6.6, p=0.001 (respectively)]. Time to diet ordered was significantly shorter in the IV APAP group (11.9 versus 18.6 hours, p=0.001). There was a trend toward faster extubation in the IV APAP group (6.3 versus 10.3 hours), however this was not statistically significant (p=0.08). Since gabapentin use was unable to be controlled for in the propensity matching and could be a significant confounder, a post-hoc analysis only including patients who received gabapentin in each arm was performed. In this post-hoc analysis, the primary outcome remained significantly different [20.5 (IV APAP) versus 29.8 (no IV APAP), p=0.002].

CONCLUSIONS: In this propensity matched, retrospective chart review, patients who received one perioperative dose of IV acetaminophen had significantly lower opioid requirements in the first 24 hours postoperatively compared to patients who did not.

9:50am – 10:05am E **Evaluation of an Updated Pediatric Diabetic Ketoacidosis Protocol** Athena H

Presenters: Evan Kelley

TITLE: Evaluation of an Updated Pediatric Diabetic Ketoacidosis Protocol

AUTHORS: Evan J Kelley, Lauren E Wyatt, McKenzie A Packard, Alan G Woodruff, Michael E DeWitt, Amit Saha, Elizabeth T Walsh

OBJECTIVE: Describe the pillars of pediatric diabetic ketoacidosis treatment.

SELF ASSESSMENT QUESTION: Why do the 2022 ISPAD guidelines recommend limiting chloride exposure in the treatment of pediatric diabetic ketoacidosis?

BACKGROUND: Diabetic ketoacidosis (DKA) is the most common cause of hospitalization, mortality, and morbidity in children with Type I diabetes mellitus (DM).1 The 2022 consensus guidelines from the International Society for Pediatric and Adolescent Diabetes (ISPAD) provide the most current recommendations for the management of pediatric DKA.2 Treatment consists of initial fluid resuscitation, IV insulin therapy, maintenance fluid administration (deficit replacement), and electrolyte correction.1,2 The use of a two-bag IV fluid system to manage fluid and glycemic needs has been well-established for pediatric patients; however, a potential drawback may be lack of standardized contents of each bag.3 The ISPAD guidelines advise limiting chloride-rich fluids as they can lead to the development of hyperchloremic metabolic acidosis, which may prolong therapy if perceived as a persistent ketosis.2 Electrolyte disturbances, including hypokalemia, are also a significant concern in DKA.1,2 Thus, an additional consideration for two-bag fluid content is the concentration of potassium that is added to the maintenance fluids.

Brenner Children's Hospital (BCH) recently updated the pediatric DKA treatment protocol to adjust the fluid contents of the 2-bag fluid system, specifically decreasing chloride content and standardizing potassium based on initial labs. This study seeks to evaluate the effect of fluid standardization on electrolytes such as chloride, potassium, and sodium during DKA treatment.

METHODOLOGY: This study was a single-center, retrospective cohort study. Encounters involving admission to the pediatric intermediate care or pediatric intensive care unit and initiated on the pediatric DKA protocol were assigned to pre-post study groups based on admission date. The pre-update period was July 1, 2021 – June 30, 2022, and the post-update period was October 1, 2022 – September 30, 2023. Encounters were included if they were < 18 years of age and had a diagnosis of DKA (defined by serum pH <7.3, serum bicarbonate ≤ 16mmol/L, and blood glucose >200mg/dL). Encounters were excluded if they had an admission diagnosis of hyperosmolar hyperglycemic state (HHS), were on dialysis or continuous renal replacement therapy, or lacked initial lab values. The primary outcome was incidence of hyperchloremia (Cl > 110mmol/L). Secondary outcomes included the incidence of hypo- or hyperkalemia, and hypo- or hypernatremia (utilizing corrected Na). Protocol adherence was also assessed based on select markers. Results were analyzed using descriptive statistics for categorical data and non-parametric testing for continuous data. Chloride data points were further analyzed via multi-level regression.

RESULTS: Fifty encounters were evaluated in each group. The groups were similar as it pertained to baseline demographics and admission characteristics with the exceptions of race and ethnicity. Incidence of hyperchloremia was lower in the post-group than the pre-group at 53.7% and 60.6% respectively, although this difference was not statistically significant. Incidence of hyperkalemia was found to be similar between groups, and while not statistically significant, the incidence of hypokalemia in the post-group was reduced compared to the pre-group (4.3% vs 7.5%). The use of tailored potassium additives to initial fluid bags was significantly increased in the post-group (72% vs 96%, p = 0.001).

CONCLUSIONS: This study demonstrated that the update in our institution's DKA treatment protocol led to no significant changes in patient electrolytes and promoted standardization of DKA treatment within our institution.

REFERENCES:
1- EL-Mohandes N, Yee G, Bhutta BS, et al. Pediatric Diabetic Ketoacidosis. [Updated 2023 Apr 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470282/
2- N Glaser, M Fritsch, L Priyambada, A Rewers, V Cherubini, S Estrada, JI Wolfsdorf, E Codner. ISPAD Clinical Practice Consensus Guidelines 2022: Diabetic ketoacidosis and hyperglycemic hyperosmolar state. Pediatric Diabetes. 2022 Oct; 23(7):835-856. doi.org/10.1111/pedi.13406
3- T So, E Grunewalder. Evaluation of the Two-Bag System for Fluid Management in Pediatric Patients with Diabetic Ketoacidosis. J Pediatr Pharmacol Ther. 2009 Apr-Jun; 14(2): 100–105. doi: 10.5863/1551-6776-14.2.100

9:50am – 10:05am ' **Identifying the Impact of Patient Internal Transfers on Medication Administrations** Athena I

Presenters: Brooks Patterson

TITLE: Identifying the Impact of Patient Internal Transfers on Medication Administrations

AUTHORS: Brooks Patterson, Shailly Shah, Henry Clark

OBJECTIVE: To evaluate the impact of interdepartmental patient transfers on medication administration timeliness

SELF ASSESSMENT QUESTION: (T/F): The data collected in this study suggests that interdepartmental patient transfers are not associated with medication administration delays.

BACKGROUND: There is no current standard process at Emory University Hospital Midtown that allows medications to be transferred with patients as they are transferred interdepartmentally throughout the hospital, leading to potential delays in medication administration.

METHODOLOGY: This study is a retrospective cohort study of all medication administrations for patients who transferred interdepartmentally at Emory University Hospital Midtown in October 2023. The administrations were included into one cohort based on if they were scheduled within 24 hours of patient interdepartmental transfer. The second cohort included all other medication administrations. Administrations were included if they were dispensed from the main pharmacy with a scheduled administration time. Medications ordered as PRN, medications with continuous frequencies, medications dispensed from automated dispensing cabinets, and medications with missed administrations were also excluded from the study. Medication administration timing of patient-specific medications was identified through Epic reporting Workbench and SlicerDicer. Medication administrations were considered on-time if administered within 60 minutes from scheduled administration time per the medication administration record. Late medication administrations were given 60 to 120 minutes from the scheduled time, and very late administrations were given over 120 minutes from the scheduled time. Fischer's exact test and multinomial logistic regression were utilized to interpret data.

RESULTS: 16,762 medication administrations were included in our study. 3,851 medications administrations were included in the cohort of administrations scheduled within 24 hours of patient interdepartmental transfer. 2,559 (66%) of these medications administrations were on-time, 757 (20%) were administered late, and 535 (14%) were administered very late. The remaining 12,911 were included in the cohort of all other medication administrations. Of this cohort, 9,227 (71%) were administered on-time, 2,343 (18%) were administered late, and 1,341 (10%) were administered very late. There was a significant difference in the proportions of on time versus late medication administrations ($p = .0014$) and in on-time versus very late medication administrations ($p < 0.001$) between the two cohorts. Medication administrations due within 24 hours post-transfer were more likely to be administered late (OR 1.165; 95% CI, 1.06-1.28) or very late (OR 1.44; CI, 1.29-1.60) as compared to on-time.

CONCLUSIONS: The data collected suggests that interdepartmental patient transfers have a significant increase in the number of late medication administrations within 24 hours post-transfer. The timeliness of medication administrations can be used as an outcome to test effectiveness of a medication transfer process.

9:50am – 10:05am M **Implementation and Impact Assessment of a Pharmacy Led Women's Health Clinic** Athena G

Presenters: Cammi Fletcher

TITLE: Implementation and Impact Assessment of a Pharmacy Led Women's Health Clinic

AUTHORS: Cammi Fletcher and Jessica Swiderek

SELF ASSESSMENT QUESTION: What was the most common prescribed menopause hormone replacement therapy in this project?

BACKGROUND: Women veterans are the fastest growing group in the VA population and require high quality gender specialized care. Ever since the initial publication of the Women's Health Initiative (WHI) in 2002, the use of menopausal hormonal therapy (MHT) has decrease by around 80%, despite subsequent data that demonstrates safety of MHT in younger postmenopausal women. A study comparing pre and post WHI trends in MHT initiation and continuation, found that MHT initiation dropped from 8.6% pre-WHI to 2.8% post-WHI (P less than 0.0001), and the corresponding decrease in MHT continuation was 84.0% to 62.0% (P less than 0.0001).

In regard to managing contraception, a study found that 73.1% of obstetrician-gynecologists and 72.6% of nurse-midwives prescribed the pill, patch, or ring, and only 51.4% of family medicine physicians, 32.4% of pediatricians, and 19.8% of internal medicine physicians do so.3 Approximately 50% of U.S.4 women will have an unintended pregnancy compared to 54-60% among women in the Air Force. Around 50-62% of service women presenting with unintended pregnancy were not using contraception when they conceived.

OBJECTIVE: This leads us to the question: What impact does a pharmacy led women's health clinic have on providing an expansion of services to women veterans in the RHJVAMC and is there an impact on preventing safety adverse events?

METHODOLOGY: This project was a prospective service expansion project. Patients included in the initial data pull were female veterans who are greater than or equal to 18 years old with an appointment in the past 29 days or in the future, an active prescription, assigned to a primary care provider. A set of exclusion criteria were applied to remove patients who would not be appropriate candidates for contraceptive or menopause management. The different ways in which patients were captured into the clinic was through referrals, e-consults, community care maternity consults, and population management dashboards. Pharmacy specific health factors were utilized to track interventions made in the women's health clinic and were reported as descriptive statistics focusing on expansion of service and preventing adverse safety events.

RESULTS: The primary endpoint was the impact of access to appropriate hormonal therapy for women veterans. A total of 18 patients were seen with 27 distinct visits for menopause medication management. The highest number of prescriptions prescribed was for estrogen alone or combination patches, followed by oral progesterone and venlafaxine. A total of 17 patients with 22 distinct visits were seen for contraceptive medication management. The most common contraceptive prescribed was the progestin only pill, Nora BE. There were 72 adverse safety events prevented or managed in clinic.

CONCLUSIONS: In this project there were 110 distinct visits with women veterans with 99 women veterans

being offered women's health specialized care. Safety events were prevented or managed for women's health related conditions.

9:50am – 10:05am C **IRON SUPPLEMENTATION IN PATIENTS WITH HFrEF FOLLOWING PHARMACIST-LED REVIEW** Parthenon 1

Presenters: Hunnain Siddiqui

TITLE: IRON SUPPLEMENTAION IN PATIENTS WITH HFrEF FOLLOWING PHARMACIST-LED REVIEW

AUTHORS: Hunnain Siddiqui, Dustin Bryan, Paige Perez, Kayla Pangburn

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure defines iron deficiency as a ferritin less than 100 mcg/L or ferritin between 100-300 mcg/L if the TSAT is less than20%. In patients with heart failure with reduced ejection fraction (HFrEF), iron supplementation was found to improve exercise capacity and quality of life. Based on the FAIR-HF and IRONOUT trials, intravenous iron is preferred in patients with HFrEF independent of the presence of iron deficiency anemia and is associated with a reduction in hospitalizations. These studies demonstrated the benefit of iron supplementation in patients with HFrEF, however, our study aimed to evaluate the effects of a pharmacist-led review on iron supplementation in patients with HFrEF.

METHODOLOGY: This retrospective, single-center cohort study included adult patients hospitalized at Cape Fear Valley Medical Center with HFrEF from January 2023 – December 2023. Groups included a historical control and an active treatment group where a pharmacist evaluated patient profiles and recommended iron supplementation based on a protocol. The primary endpoint was the percentage of patients eligible with HFrEF receiving appropriate iron therapy before and after implementation of a pharmacist-led review.

RESULTS: In progress

CONCLUSIONS: In progress

9:50am – 10:05am R **Evaluation of Antithrombin Administration in Critically Ill Patients During Heparin Anticoagulation** Olympia 1

Presenters: Nick Tran

TITLE: Evaluation of Antithrombin Administration in Critically Ill Patients During Heparin Anticoagulation

AUTHORS: Nick Tran, Maddie Cooper, Neha Naik, Kayla Lawlor

OBJECTIVE: Describe the dosing and monitoring of antithrombin administration during heparin anticoagulation.

SELF ASSESSMENT QUESTION: When would it be appropriate to administer antithrombin to patients on heparin anticoagulation?

BACKGROUND: Heparin resistance is the failure to achieve therapeutic anticoagulation despite adequate heparin doses. Antithrombin has been well-validated to mitigate heparin resistance and reduce fresh frozen plasma requirements in cardiopulmonary bypass. However, data for antithrombin use outside of cardiac surgery is lacking. To date, antithrombin's safety and efficacy outside of cardiac surgery, especially for patients on long-term heparin infusions, has not been well-elucidated. The purpose of this study was to evaluate the efficacy and safety of antithrombin in patients receiving intravenous heparin for anticoagulation outside of the operating room.

METHODOLOGY: This IRB approved study is a multi-center, retrospective case series of patients admitted to an intensive care unit within the Emory Healthcare system from July 1st, 2017 to June 1st, 2023. Patients were identified through the electronic medical record and included if they received heparin for therapeutic anticoagulation and antithrombin. Patients were excluded if they received antithrombin in the OR, ECMO, PEG-asparaginase, were on subtherapeutic heparin infusions, or had genetic antithrombin deficiency. The primary outcome was the incidence of patients with therapeutic anti-Xa levels within 24 hours of antithrombin administration. Secondary outcomes included time to therapeutic anti-Xa levels, total time in therapeutic range, antithrombin dose(s), and antithrombin activity assay levels before and after administration. Heparin infusion doses were also collected at the time points of antithrombin administration, collected assay levels, and therapeutic anti-Xa levels. Safety outcomes included in-hospital mortality and incidence of new hemorrhage and thrombosis. Baseline characteristics and outcomes were summarized with descriptive statistics. A prespecified analysis to identify patient-specific characteristics associated with efficacy was employed. Through utilization of hypothesis testing, baseline characteristics and select secondary outcomes were compared between responders and non-responders to identify those who met and did not meet the primary outcome, respectively.

RESULTS: A total of 63 patients with similar baseline characteristics were included in the study. Patients had a mean SOFA score of 9.8, Child-Pugh score of 7.4, and BMI of 25.1. Non-responders had higher creatinine clearance, and lower body weight and BMI compared to responders. The majority of patients had deep vein thrombosis or pulmonary embolism as the indication for therapeutic heparin anticoagulation. Antithrombin was administered after a median duration of four days of intravenous heparin therapy. Mean antithrombin levels were 49.9% and 79.9% prior to and after administration of antithrombin, respectively. The incidence of therapeutic anti-Xa within 24 hours occurred in 47 out of 63 patients (74.6%). The median time to a therapeutic anti-Xa level was 6 hours. Patients remained in therapeutic range 50% of the time seven days after antithrombin administration, with 26 patients (41.3%) experiencing at least one supratherapeutic anti-Xa level. Forty-two patients (66.7%) were able to maintain their current heparin infusion rate or had it decreased after antithrombin administration. Overall, in-hospital mortality was 17.5%. Rates of new thrombosis and hemorrhage within seven days were 6.3% and 4.8%, respectively.

CONCLUSIONS: Antithrombin appears to be safe and effective for mitigating heparin resistance and achieving therapeutic anticoagulation in critically ill patients outside of the operating room. Antithrombin may require multiple doses and continual therapeutic monitoring as its effect is unlikely to persist long-term for certain patients. Lower body weight, BMI, and augmented renal function may be associated with decreased heparin response to antithrombin administration. Further research in prospective, large, randomized controlled trials are

required to evaluate the efficacy and safety of antithrombin and heparin compared to alternative anticoagulation without antithrombin and to determine patient-specific factors that are more and less likely to benefit from antithrombin.

9:50am – 10:05am R **Impact of an Emergency Medicine Pharmacist on Time to Culture Review** Olympia 2

Presenters: baylea kyle

TITLE: Impact of an Emergency Medicine Pharmacist on Time to Culture Review
AUTHORS: Baylea Kyle, Andrew Baxley, Matthew Mcallister, Jordan Baxley
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: Emergency Medicine Pharmacist (EMP) services play a significant patient care role within the emergency department (ED). While historically associated with larger, academic medical centers, EMP services are being incorporated into smaller, community EDs, as well. At Piedmont Columbus Regional Northside (PCN), EMP services were recently added to the 20-bed emergency department. One area in which EMPs are historically involved is antimicrobial stewardship (AST). Pharmacist involvement in AST in the ED consists of following up with culture results, making antimicrobial therapy recommendations, and effectively communicating findings to both patient and physician, if necessary. Implementation of an EMP within the PCN emergency department has the potential to improve overall patient care and cost-savings through timely optimization of antibiotic therapy.
METHODOLOGY: A retrospective chart review was conducted of adult patients discharged from the emergency department between October 1, 2022 – December 31, 2022 (pre-implementation period) and October 1, 2023 – December 31, 2023 (post-implementation period). Patients were included if they were 18 years of age or older and had positive blood, urine, and/or wound cultures resulting after their discharge from the ED. Patients were excluded if their cultures were negative or deemed to be contaminated, they were admitted to the hospital, or they were transferred to another healthcare facility. Patients were also excluded if there was lack of documentation regarding when cultures were reviewed. The primary objective of this study was to compare the difference in time to culture review between pre-EMP implementation and post-EMP implementation. Secondary objectives included evaluating the number and type of interventions made and interpreting cost savings of these interventions.
RESULTS: TBD
CONCLUSIONS: TBD

9:50am – 10:05am F **Impact of Implementing the Allergy to Beta-Lactam Evaluation in the Outpatient Setting within a VA** Athena D

Presenters: Shelby Bradley

TITLE: Impact of Implementing the Allergy to Beta-Lactam Evaluation in the Outpatient Setting within a VA

AUTHORS: Shelby Bradley, Jessica Box, Laura Rice, Linda Clark

OBJECTIVE: Evaluate the impact of the ABLE process in the outpatient setting

SELF ASSESSMENT QUESTION: Which of the following is NOT an impact of the ABLE process?

BACKGROUND: Penicillin allergies are one of the most commonly reported allergies in the United States; however, around 90% of reported penicillin allergies aren't true IgE mediated reactions, which can lead to the prescribing of non-preferred antibiotics. The Allergy to Beta-Lactam Evaluation (ABLE) Task Force developed a national ABLE initiative aimed to clarify and evaluate beta-lactam allergy histories for Veterans. My primary objective is to evaluate the impact of the ABLE process in the outpatient setting at the Biloxi VA Medical Center. Secondarily, by utilizing time measurements, I will evaluate the feasibility of ABLE implementation in the outpatient setting.

METHODOLOGY: The ABLE process consists of a standardized template embedded in the electronic health record. Through use of the ABLE template to guide a patient interview, penicillin allergies may be de-labeled, recommendations may be made for alternative beta-lactams, and penicillin allergy history is clarified. The ABLE Population Management Tool was used to identify Veterans with a penicillin allergy. Veterans were filtered by those at the Biloxi VA Medical Center Facility who are not admitted, who have an upcoming primary care appointment scheduled, and who have an upcoming surgery appointment scheduled. After ABLE evaluations were completed for these Veterans, the following was assessed: a) The number of Veterans with a clarified allergy history using the template b) The percent of de-labeled penicillin allergies, including the percent of cases in which the reported allergy was actually a side effect rather than IgE mediated reaction c) The percent of recommendations made for alternative beta-lactam antibiotic use, including when alternative beta-lactams were later prescribed by providers d) Total time for patient work-up, interview, and documentation e) If patient was prescribed an antibiotic before or after their surgery and if so, the class of antibiotic prescribed.

RESULTS: 84 patients were identified and called for an ABLE interview. 60 of these patients participated in the ABLE interview. 9 allergies (9%) were de-labeled – of these, 1 allergy (1.7%) was removed from the chart and 8 allergies (13.3%) were found to actually be side effects and converted to a pharmacological side effect in the chart. 59 patients (98.3%) were eligible for an alternative beta-lactam antibiotic, such as a cephalosporin and/or carbapenem. 13 patients (22%) were prescribed an antibiotic after their ABLE interview, with 1 of these being a beta-lactam, cefuroxime. The average time for patient work-up was 6 minutes, patient interview was 5 minutes, and documentation was 7 minutes.

CONCLUSIONS: ABLE can facilitate de-labeling of penicillin allergies through removal of penicillin allergy and/or conversion of the allergy to a side effect in the medical chart, clarification of the allergy, and well a provide recommendations for alternative beta-lactam antibiotics such as cephalosporins or carbapenems. ABLE can be incorporated in the outpatient setting when Clinical Pharmacy Practitioners encounter patients with penicillin allergies.

9:50am – 10:05am F **Implementation and Evaluation of a Pharmacist-Led Penicillin Allergy Assessment via the PEN-FAST Tool in a Rural Hospital** Athena C

Presenters: Bailey Agee

Title: Implementation and Evaluation of a Pharmacist-Led Penicillin Allergy Assessment via the PEN-FAST Tool in a Rural Hospital

Authors: Bailey Agee, Kady Stoyanov, Lindsey Arthur, Lisa Gibbs

Contact: Bailey.Agee@selfregional.org

Background/Purpose: Beta-lactam antibiotics are first line therapies for many infections. Clarification of penicillin allergies helps to avoid many potential risks such as the utilization of antibiotics that are less effective, have additional adverse effects, increased healthcare costs, and increased risk of antimicrobial resistance. The Penicillin Allergy Decision Rule (PEN-FAST) is a useful tool with high negative predictive value of identifying low-risk penicillin allergies. The objective of this study is to trial implementation of pharmacist-driven penicillin allergy assessment utilizing the PEN-FAST scoring tool in a rural community hospital.

Methods: This prospective cohort study will include patients ≥ 18 years of age with a documented penicillin allergy admitted to Self-Regional Healthcare in Greenwood, South Carolina from December 1, 2023, through January 31, 2024, in which the intervention occurred. Implementation components include pharmacy personnel training, performance of PEN-FAST scoring for patients with a documented penicillin allergy, documentation of PEN-FAST score allergy field in the electronic medical record, and pharmacist intervention on patients with PEN-FAST score of low or very low. Data collection will include patient age, infectious diagnosis, prescribed antimicrobial agents, and allergy documentation. The primary outcome of this study is the percentage of patients with PEN-FAST score < 3. Secondary outcomes include the percentage of previously “unspecified” PCN allergies via EMR, patients with previous toleration of β-lactam antibiotic, patients with previous toleration of PCN antibiotic, patients reporting no PCN allergy, patients receiving non-PCN β-lactams prior to PEN-FAST scoring, PEN-FAST scores leading to direct pharmacist intervention, and patients transitioned to β-lactam after penicillin allergy update.

Results: A total of 115 patients were included in this study. The result for the primary outcome indicates 62.61% of patients had a PEN-FAST score of <3 indicating low or very low risk. Results for the secondary outcomes showed that 74.78 % of patients had unspecified PCN allergies via EMR, 49.57 % of patients previously tolerated β-lactam antibiotics, 16.52 % of patients tolerated penicillin antibiotics, and 6.09 % of patients reported no penicillin allergy upon questioning. A subgroup of 54 patients were receiving antimicrobials in which 62.96 % were receiving non-PCN β-lactams prior to PEN-FAST scoring. PEN-FAST scores lead to direct pharmacist interventions in 4 patients and 5 patients were transitioned to a β-lactam after the penicillin allergy was updated. One allergic reaction occurred associated with the receipt of a β-lactam after the allergy was updated.

Conclusions: Appropriate patient interview and chart review can help clarify or eliminate many penicillin allergies. Non-penicillin β-lactams were often not avoided in patients with penicillin allergies. Many patients with a penicillin allergy have a PEN-FAST score <3 and would be eligible for oral amoxicillin challenge. The addition of protocolized oral amoxicillin challenge may assist in de-labeling many of these penicillin allergies. Pharmacy and provider education regarding allergy risk with PEN-FAST scoring is essential to prevent harmful allergy de-labeling.

9:50am – 10:05am F **Time to proper antimicrobial selection with BCID2 Panel test using provider education and EHR alerts** Athena B

Presenters: Kavya Balaji

TITLE: Time to proper antimicrobial selection with BCID2 Panel test using provider education and EHR alerts
AUTHORS: Kavya Balaji and Tanea Womack
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: BioFire BCID2 Panel testing is a useful tool for improved antimicrobial stewardship and patient outcomes but inadequate provider education and notification of the BCID2 panel results can minimize its impact. An interruptive electronic health record (EHR) notification along with standardized provider education on the BCID2 Panel, may reduce risk of mortality, improve patient outcomes, optimize antimicrobial use, and reduce hospital-associated costs.
METHODOLOGY: This is a multi-center, observational study at Wellstar Health System that will assess time to optimal antimicrobial selection for positive bloodstream infections in patients ≥ 18 years. Since phase I of Wellstar Cobb's previous study found possible limitations in provider education and discovery of panel results, improved BCID2 Panel education will be implemented at participating facilities across the health system (i.e. Wellstar Cobb Medical Center, Wellstar North Fulton Medical Center, Wellstar Paulding Medical Center, Wellstar Windy Hill Hospital). In addition to incorporating an interruptive best practice advisory (BPA) alert, hospitals within the system will include pharmacy notifications that fire upon pathogen identification. Pharmacy notifications will be in the form of a patient column and/or inbasket message (based on facility discretion). The study population includes in-patients whose blood cultures were first collected at a Wellstar facility.
RESULTS: TBD
CONCLUSIONS: TBD

9:50am – 10:05am S **Utilization of Local Chart Review Tracker to Improve Misdiagnosis and Undertreatment of OUD** Athena A

Presenters: Sara Hernandez

TITLE: Utilization of Local Chart Review Tracker to Improve Misdiagnosis and Undertreatment of OUD
AUTHORS: Sara Hernandez PharmD, Amber Brewer PharmD, Nieka Jackson PharmD, Marci Swanson PharmD
OBJECTIVE: After this presentation, you'll be able to differentiate opioid dependence & long-term use of opioid
SELF ASSESSMENT QUESTION: Why is it important to use the correct diagnosis code for opioid dependence and long-term use?
BACKGROUND: There are 39.5 million people worldwide with drug use disorders and only 1 in 5 are receiving treatment. In order to ensure patients are diagnosed and treated appropriately, it is important to understand the difference between opioid dependence and opioid use disorder (OUD). The purpose of this quality improvement project is to the improve misdiagnosis of opioid use disorder within the Carl Vinson VA Medical Center and to increase access for medication assisted treatment in those with opioid use disorder.
METHODOLOGY: This performance improvement project was approved by the P&T Committee. The primary objective of this project is to improve the Psychotropic Drug Safety Initiative metric SUD-16, which identifies Veterans with opioid use disorder (OUD) entered either in the problem list or during an encounter in the last 12 months who are not currently receiving medication for opioid use disorder (MOUD). Secondary objectives include: educating providers on diagnostic criteria for OUD/long-term use of an opioid, and increasing the number of naloxone kits dispensed. For actionable patients identified by SUD-16, a chart review will be entered into Computerized Patient Record System (CPRS) using the “Opioid Use Disorder Chart Review” note template. If OUD diagnosis is confirmed, the primary provider will be alerted via an addendum for referral to MOUD clinic for appropriate management. If OUD diagnosis is invalid, problem list will be updated and ICD-10 code will be changed from F11.2x to Z79.891 when appropriate. Education will be provided to prescribers with a higher incidence of misdiagnosis. The data will be pulled and recorded in the local DUB OUD Chart Tracker dashboard. All Veterans from SUD-16 list will be included. We will exclude any Veterans established with other VA Medical Centers or deceased at the time of chart review. A reduction in the percentage of Veterans with a diagnosis of OUD not currently receiving MOUD is anticipated.
RESULTS: TBD
CONCLUSIONS: TBD

10:20am – 10:35am

Impact of a Real-Time Inpatient Clinical Dashboard on Pharmacist Documentation of Interventions

Athena I

Presenters: Caroline Watkins

TITLE: Impact of a Real-Time Inpatient Clinical Dashboard on Pharmacist Documentation of Interventions

AUTHORS: Caroline Watkins, Eric Schumann, Anne Parnell, Kevin Brittain, Bryan Quinn

OBJECTIVE: Describe how a clinical pharmacy intervention dashboard can improve number of pharmacist interventions and appropriate documentation.

SELF ASSESSMENT QUESTION: If you were considering implementing an inpatient clinical pharmacy intervention dashboard at your institution, all are things you should consider except:

BACKGROUND: The Ralph H. Johnson VA Healthcare System utilizes an advanced decentralized collaborative practice model within the pharmacy department. Pharmacists are responsible for rounding with their respective team in the hospital, providing recommendations within their scope of practice, and completing necessary documentation. Historically, there has been a challenge with not having real-time patient data. Most standardized patient reports had a 24 hour lag, making it more difficult to stay fully informed on patients throughout the day. There is also inconsistent documentation of interventions depending on clinical pharmacist and daily patient load. Having real time data and a more standardized approach to managing patient workload should theoretically increase the number of interventions documented.

METHODOLOGY: Eligible patients for the dashboard included any patient admitted to the Ralph H. Johnson VA Healthcare System during the project period. Before launching the dashboard, it had to be created by the informatics team, note templates and a list of dashboard metrics had to finalized, and education had to be provided to all inpatient pharmacists who were required to use the dashboard after launch. The primary endpoint was the total number of pharmacist interventions made after dashboard implementation. The secondary endpoint was the total number of pharmacist intervention notes written, and an exploratory endpoint focused on the total number of heart failure interventions documented after dashboard implementation. Data was collected through the Corporate Data Warehouse (CDW) and Computerized Patient Record System (CPRS).

RESULTS: There was an average daily census of 75 patients in the baseline period and 85 patients in the follow up period. After being normalized to the institution’s census, the total number of pharmacists interventions increased from 120.4 to 135.5 interventions per patient day in the baseline and follow up periods, respectively ($p=0.329$). The most common interventions documented from the dashboard were blood pressure control, addition of deep vein thrombosis (DVT) prophylaxis, and changes to heart failure guideline directed medical therapy (GDMT). The total number of intervention notes written increased from 29.8 to 38.6 notes written per patient day ($p<0.001$) and the total number of heart failure interventions documented increased from 36 to 135 interventions documented for the baseline and follow up period, respectively ($p<0.001$). Fourteen clinical pharmacists and three pharmacy residents utilized the dashboard during the project period.

CONCLUSIONS: Overall, there was a statistically significant increase in number of intervention notes written and number of heart failure interventions documented. It is important that pharmacists are able to prove their value on the healthcare team, so becoming more efficient finding and documenting interventions is crucial. Based off the results of this project, a clinical pharmacy intervention dashboard could be the first step to standardization and improved efficiency.

10:20am – 10:35am M **Ensuring GDMT in patients with HFrEF through Pharmacist Consultation in the Primary Care Setting** Athena G

Presenters: Madison Thrasher

TITLE: Ensuring GDMT in patients with HFrEF through Pharmacist Consultation in the Primary Care Setting

AUTHORS: Madison Thrasher, Eric Metterhausen, Saleena Brownell, Katrina Durst, Tabitha Dillinger

OBJECTIVE: Describe the four pillars of therapy for heart failure with reduced ejection fraction.

SELF ASSESSMENT QUESTION: What beta-blockers are recommended by the 2022 Heart Failure Guidelines for patients with HFrEF

BACKGROUND: The American Heart Association estimates that by 2030 there will more than 8 million people in the United States who are diagnosed with congestive heart failure (CHF). They also anticipate that the cost of care for those with heart failure will grow to $53 billion, a massive increase from an estimated $21 billion in 2012. From October 1, 2022 to October 1, 2023 there were 327 patients who were seen by a primary care provider (PCP) in the Primary Care (PC) department at Cherokee Indian Hospital Authority (CIHA) who had a diagnosis of CHF in their chart. Due to the complexity of heart failure as a syndrome, patients should be managed by a multidisciplinary team. Patients who have heart failure with a reduced ejection fraction (HFrEF) should be on the four pillars of guideline-directed medication therapy (GDMT) in order to decrease mortality risk. Pharmacists in PC can be utilized to review patients with a heart failure diagnosis to ensure they are on appropriate GDMT.

METHODOLOGY: Patients being seen in the outpatient primary care clinic will be assessed by a pharmacist via chart review prior to their upcoming appointment. Patients with a Left Ventricular Ejection Fraction (LVEF) less than 40% will be evaluated for appropriate pharmacotherapy including the four pillars of GDMT and optimized dosing. Starting doses of beta-blockers (BB), Mineralocorticoid Receptor Antagonists (MRA), Angiotensin II Receptor Blockers (ARB), Angiotensin-Converting Enzyme inhibitors (ACEi), Angiotensin Receptor/Neprilysin Inhibitors (ARNI), and Sodium-Glucose Transport protein 2 inhibitors (SGLT2i) will all be documented. The pharmacist will make recommendations for medication therapy modifications as appropriate. Data collection will include 90 days prior to intervention and 90 days after medication optimization. After pharmacist intervention these medications will be re-evaluated for optimization and compared to starting data. The number of accepted interventions will be documented as a primary outcome. Hospitalizations and emergency room visits will also be collected and evaluated as secondary outcomes.

RESULTS: A total of 42 patients were attempted to be seen, 21 patients were actually seen with a total visit count of 28. Of the 21 patients that were seen, only 4 were on GDMT at the beginning of the study. At the end of the study period, there were 17 interventions made and 8 patients who were on GDMT. When comparing ER visits and hospitalizations, there were 7 ER visits 30 days before and after the study start and stop dates and 2 hospitalizations 30 days before the start date with zero 30 days after the stop date. The 90 day ER visit and hopsitalization numbers are still pending.

CONCLUSIONS: Pharmacists in the primary care setting are capable of meeting with patients who have heart failure with reduced ejection fraction frequently and ensuring they are on guideline-directed medical therapy as well as provide education on heart failure and the medications that are recommended to help improve their heart function and quality of life.

10:20am – 10:35am F **Predictors of safe and effective treatment of LVAD-specific and LVAD-related infections** Athena C

Presenters: Maura Kreiser

TITLE: Predictors of safe and effective treatment of LVAD-specific and LVAD-related infections

AUTHORS: Kreiser M, Derrick C, Nicholas H, Axson R, Shannon N, Teng C, Cox J, Straw LJ, Bookstaver PB

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Infections are a leading adverse event post-implantation of left ventricular assist devices (LVAD). LVAD associated infections lead to significant costs and healthcare burden. The optimal management strategies are ill defined in the literature with significant variance among observational studies. This study aims to determine variables associated with safe and effective treatment of LVAD-specific and LVAD-related infections.

METHODOLOGY: This retrospective, observational cohort study included patients 18 years or older who had a LVAD implanted with follow-up care at Prisma Health Richland from October 1, 2012 - December 31, 2023, and experienced an LVAD-specific or LVAD-related infection. Patients were followed for safety and effectiveness outcomes for 90 days post completion of antimicrobial therapy. The primary endpoint was to identify host, microbiology and/or treatment-related variables associated with treatment failure, defined as a composite of recurrent LVAD-specific and/or LVAD-related infection with the same organism, hospitalization due to worsening infection, and/or mortality within 90 days from the conclusion of active treatment. Secondary endpoints included identifying factors associated with the occurrence of safety events and analyzing the proportion of patients who developed treatment-resistant recurrent infection. Univariate Cox proportional hazard regression will be used to identify potential factors associated with treatment failure and adverse events, respectively. Those factors will be included in a multivariate regression model.

RESULTS: In the treatment success group, driveline infection was the most common infection type and Staphylococcus aureus was the most common single isolated organism. In the treatment failure group bloodstream infection and surgical site infection were the most common infection types, and Coagulase Negative Staphylococcus was to most common single isolated organism. In both groups, an antimicrobial regimen containing vancomycin and cefepime was the most common empiric treatment and an antimicrobial regimen containing vancomycin was the most common definitive treatment.

CONCLUSIONS: This study was limited by its small sample size. Further data collection must be completed with data from previous studies to increase sample size and perform statistical analysis that allows conclusions to be drawn about associated predictors of success.

10:20am – 10:35am F **Impact of a Pharmacy-led Penicillin Allergy Assessment Tool at a Community Hospital** Athena D

Presenters: Sandra Perry

TITLE: Impact of a Pharmacy-led Penicillin Allergy Assessment Tool at a Community Hospital

AUTHORS: Sandra Perry, Sarah McDaniel, Carra Powell, Arsa Shehu-Gega

OBJECTIVE: Assess the impact of a pharmacy-led penicillin allergy assessment protocol.

SELF ASSESSMENT QUESTION:

BACKGROUND: Penicillin is the most frequent drug allergy reported in the United States according to the Centers for Disease Control and Prevention. However, a significant portion of reported penicillin allergies are not immune-mediated responses; rather, they often involve intolerances or adverse effects. When penicillin is documented as an allergy, it limits the available antibiotic choices, resulting in unnecessary use of broad spectrum or second line antimicrobials. This is associated with higher healthcare costs, antimicrobial resistance, and suboptimal antibiotic therapy. The purpose of this study is to assess the impact of a pharmacy-led penicillin allergy assessment protocol.

METHODOLOGY: This was a single-center, retrospective chart review that evaluated patients admitted from September 2023 to November 2023 with a reported allergy to penicillin and a completed pharmacy-led penicillin allergy assessment form. The form comprises the following information: source of reported allergy (e.g., patient vs. family member), exclusion reason (e.g., intubated, altered mental status), reaction description, how soon the reaction occurred, if the reaction had occurred within the past ten years, if treatment was required for the reaction and what treatment, and if the patient has taken this medication or a similar one since the reported allergy. These patients were also later evaluated for readmission. Patients who were considered an unreliable source (i.e. altered mental status, intubation) or unable to answer the questionnaire were excluded. The primary outcome of this study was to evaluate the percentage of patients with delabeled penicillin allergies after completion of the allergy assessment tool. Secondary endpoints included assessing allergy risk stratification and clarification of the penicillin allergy.

RESULTS: Of the 177 electronic medical records reviewed, 137 met inclusion criteria. Fifteen allergies were delabeled, while the rest were clarified. Clarification encompassed updating the reported allergy to include details about the kind of reaction, onset, severity, and treatment required. Sixteen patients were admitted for infectious reasons. Participants were an average of 64 years of age, predominately female, of Black ethnicity, with an average length of stay of 6 days. One hundred ten patients specifically reported an allergy to penicillin, and five patients reported multiple beta-lactam allergies. One hundred twenty-one of the allergies were self-reported and 59 patients reported that their allergy was less than 10 years prior. Eighty-seven patients reported a severe allergic reaction (i.e., angioedema, rash, hives, throat swelling), while 51 reported a non-severe reaction (i.e., itching, palpitations, chest pain). Thirty-one patients reported a reaction to penicillin within minutes, and only one of these patients reported that they required rescue treatment with epinephrine. Forty-five patients reported that their allergic reaction required treatment. Forty-one patients self-reported that they had taken a similar drug since their reaction, and 130 patients had a beta-lactam on their electronic medical record within the last 10 years.

CONCLUSIONS: The implementation of a pharmacy-driven penicillin allergy protocol facilitates the clarification and removal of inappropriate penicillin allergies from patient records. From this study, thirty patients would have been eligible for further assessment of their penicillin allergy with an oral challenge protocol. Development of an oral challenge for eligible patients provides an opportunity for the delableing of more penicillin allergies.

10:20am – 10:35am T **Shorter Duration of Apixaban for Venous Thromboembolism following Parenteral Anticoagulation** Athena B

Presenters: Nathan Hanzelka

TITLE: Shorter Duration of Apixaban for Venous Thromboembolism following Parenteral Anticoagulation

AUTHORS: Nathan Hanzelka, Quyen Bach, Brent Dunn, Stuart Pope

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: To evaluate the efficacy and safety of full loading dose courses compared to shorter loading dose courses of apixaban in patients admitted to two hospitals within the Emory system following parenteral anticoagulation and its impacts on clinical outcomes.

METHODOLOGY: A multi-center, retrospective chart review was conducted spanning the period from October 1, 2022, to September 30, 2023. The inclusion criteria encompassed individuals who received apixaban following the administration of parenteral anticoagulation for a minimum of 24 hours, with a specific focus on newly diagnosed venous thromboembolism (VTE) in individuals aged 18 years or older. On the other hand, exclusion criteria were applied to patients with a body mass index (BMI) exceeding 40 kg/m2 or exceeding 300 kg, those who did not complete the total loading dose during their inpatient stay, individuals on any other direct oral anticoagulant (DOAC) before admission, patients experiencing active bleeding, those discontinuing apixaban, and those prescribed apixaban for reasons other than the specified indications. The study's primary outcomes were defined as a major bleeding event within three months of the index event and the recurrence of venous thromboembolism (VTE) within the same time frame. In addition to these primary outcomes, the study also aimed to investigate several risk factors, specifically those associated with the recurrence of VTE and those linked to major bleeding events.

RESULTS: A total of 79 patients were included in the study population. 59 patients had a full apixaban load, defined as greater than or equal 7 days of apixaban 10 mg twice daily, and 21 patients had a reduced load, defined as less than 7 days of apixaban 10 mg twice daily. Of the 58 patients in the full apxiaban load group, a total of 3 patients (5%), had a VTE within three months of initial treatment and of the 21 patients in the reduced apixaban load group, a total of 3 patients (14%), had a VTE within three months of initital treatment (P-value 0.33). Of the 58 patients in the full apxiaban load group, a total of 1 patient (2%), had a major bleeding event within three months of initial treatment and of the 21 patients in the reduced apixaban load group, a total of 1 patients (5%), had a VTE within three months of initital treatment (P-value 0.46). Of the risk factors studied, only history of COVID-19 infection (P-value 0.01) and active cancer (P-value 0.03) showed statistical significance with respect to VTE recurrence. No risk factor studied for major bleeding showed to be statistically significiant.

CONCLUSIONS: In comparing the incidence of both venous thromboembolism (VTE) recurrence and major bleeding events between the full load group and the reduced load group, no statistically significant differences were observed. Similarly, no significance was found in any predictors for either VTE recurrence or major bleeding events. Consequently, the study suggests that recommendations for a reduced loading dose should not become common practice, advocating instead for patients to receive a full 7-day load of apixaban, irrespective of prior use of parenteral anticoagulation. The trends identified in this research indicate a need for further exploration into alternative dosing regimens of apixaban for the treatment of VTE.

10:20am – 10:35am M **Characterization of Strategies for Switching Between GLP-1 & Dual GLP-1/GIP Agonists Type 2 Diabetes** Athena H

Presenters: Emily Hightower

TITLE: Characterization of Strategies for Switching Between GLP-1 & Dual GLP-1/GIP Agonists Type 2 Diabetes

AUTHORS: Emily R. Hightower, Kate O'Connor, Mary Carpenter

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Current literature and guidelines for the management of type 2 diabetes support the growing and favorable use of glucagon-like peptide 1 (GLP-1) or dual glucose-dependent insulinotropic polypeptide (GIP) and GLP-1 receptor agonists. The benefit offered for weight management has increased demand for off-label use of these agents, which has led to nationwide shortages and reduced availability. There is limited guidance available on optimal strategies to safely and effectively transition between GLP-1 agonists. The primary objective is to determine optimal dosing strategies for transitioning between GLP-1/GIP agonists based on anticipated tolerability and the subsequent effects on hemoglobin A1c and weight.

METHODOLOGY: This single-center, retrospective chart review looked at adult patients 18 and older with type 2 diabetes mellitus prescribed at least two GLP-1/GIP agonists between July 1, 2021 and June 30, 2023 by an internal medicine or family medicine clinic provider at an academic medical center. Excluded patients included those without a diagnosis of type 2 diabetes mellitus, use of a GLP-1/GIP agonist for indications such as weight loss, pre-diabetes, or type 1 diabetes mellitus, or having a concomitant prescription for a dipeptidyl peptidase IV (DPP4) inhibitor. Additionally, patients were excluded if the prescribed agent(s) were never filled due to cost considerations. All data was obtained from the patient's electronic medical record and included baseline demographics, antihyperglycemic agents prescribed in addition to GLP-1/GIP agonist(s), initial GLP-1/GIP agonist, dose and frequency, GLP-1/GIP agonist transitioned to, dose and frequency, rationale for switching agents, hemoglobin A1c and weight before initiating GLP-1/GIP agonist, at the time of switching agents, and at least three months after switching agents. Tolerability (adverse drug reactions, hypersensitivity reactions, injection site reactions), efficacy, and adherence patterns were also collected. Descriptive statistics were used to analyze collected data. This study was approved as an Institutional Review Board exempt study prior to any data collection.

RESULTS: Of the 48 patients included in this study, the average age was 56 years with 64.6% (n=31) being female. Among the patients, 95.8% (n=46) were taking at least 1 additional anti-diabetic medication at the time of GLP-1/GIP initiation with 39.1% (n=18) on at least 2, and 17.4% (n=8) on at least 3 additional agents for glycemic control. The initial GLP-1/GIP agonists prescribed included dulaglutide (50%, n=24), liraglutide (20%, n=10), semaglutide SQ (12.5%, n=6), tirzepatide (8.4%, n=4), semaglutide PO (6.3%, n=3), and exenatide weekly (2.1%, n=1). Common transitions included tirzepatide (39.6%, n=19), semaglutide SQ (31.3%, n=15), dulaglutide (22.9%, n=11), and liraglutide (6.3%, n=3). Results showed variable reductions in hemoglobin A1c and weight, dependent on the specific drug and dose transitioned. Notably, 56.3% (n=26) of patients demonstrated improvement/maintenance in A1c and weight reduction with tolerability of the agent transitioned to. Among those not meeting the primary outcome, 86.4% (n=19) of patients tolerated the switch but did not achieve the desired results in A1c, weight, or both. The most common rationales for transitioning patients to an alternative GLP-1/GIP agent were results of the national drug shortage (29.2%, n=14) and efficacy (27.1%, n=13).

CONCLUSIONS: Appropriate dosing strategies were determined for patients transitioning between GLP-1/GIP agonists based on improvement/maintenance in A1c, weight reduction and tolerability of agents. Potential transitions showed variable changes in overall weight and A1c. Despite varied effects, all strategies were deemed appropriate from a tolerability perspective. Limitations include limited dosing groups evaluated as well

as follow-up to evaluate fully optimized management of the transitioned agent. This study emphasized diverse outcomes and considerations in transitioning patients to alternative GLP-1/GIP agonists while providing evidence supporting safe and effective strategies for transitions based on tolerability and overall effects on hemoglobin A1c and weight.

10:20am – 10:35am C **ACUTE KIDNEY INJURY IN CARDIAC SURGERY PATIENTS WITH A POSITIVE TIMP-2 AND IGFBP-7** Parthenon 2

Presenters: Sydney Cason

TITLE: ACUTE KIDNEY INJURY IN CARDIAC SURGERY PATIENTS WITH A POSITIVE TIMP-2 AND IGFBP-7

AUTHORS: Sydney Cason, Ethan Gerrald, Erica Roman, Austin Roberts, Laura Beth Parsons

OBJECTIVE: Identify the AKI incidence associated with early versus delayed diuretic administration.

BACKGROUND: Acute kidney injury (AKI) is a prevalent complication seen within cardiac surgery patients. The risk of development of an AKI postoperatively can be multifactorial due to patient preoperative characteristics, intraoperative course, and postoperative management. The TIMP-2 and IGFBP-7 marker test is a predictive laboratory measure that is utilized by institutions to help identify cardiac surgery patients who are at risk for AKI postoperatively. It has been found to be predictive of this risk within 12 hours for cardiac surgery patients. Questions remain regarding when to incorporate diuretics into these patients post-operatively. Therefore, we aimed to identify the AKI incidence associated with early versus delayed diuretic administration following cardiac surgery in patients with a positive result for TIMP-2 and IGFBP-7.

METHODOLOGY: This was a retrospective cohort study conducted through chart review from June 1, 2023 to July 31, 2023. Patients were identified for incorporation into the analysis if they had a positive TIMP-2 and IGFBP-7 within 24 hours following cardiac surgery. Patients were stratified into study arms based off of when they received a diuretic after the TIMP-2 and IGFBP-7 result. The early diuretic group received a dose of a diuretic within 12 hours, and the late group received the first dose after 12 hours or more. The primary objective was to compare incidence of AKI between patients who received early versus late diuretic administration, defined as serum creatinine rise 200 percent from baseline or the need for renal replacement therapy within 5 days of a positive TIMP-2 and IGFBP-7 test. Other pertinent endpoints included time to each component of the primary endpoint, as well as the incidence of AKI stages 1, 2, and 3.

RESULTS: One hundred thirty-eight patients received a following cardiac surgery. Patients were excluded due to having RRT at baseline, a negative TIMP-2 * IGFBP-7 test, or for receiving diuretics prior to the renal injury test. Of these patients, twenty-three were assigned to the early diuretic study arm and thirty-seven were assigned to the comparator. The primary outcome of time to stage II AKI or greater in severity was not significantly different between the two groups of patients ($p = 0.57$). Additionally, the time to the primary outcome, as well as the incidence of the individual stages of AKI were similar between groups ($p > 0.05$). Overall, very few patients within our study received concurrent nephrotoxic agents in either the early diuretic group (8.7%) or the late diuretic group (10.8%). Additionally, the proportion of patients with vasopressor or inotrope utilization was generally low. Only 35% of patients in total were on vasopressors within 72 hours following TIMP-2 * IGFBP-7 testing, with no significant differences between the groups ($p = 0.83$). The incidence of patients receiving inotropes was 20% which was also similar between groups ($p = 0.35$). The group of patients that received early diuretic management had more patients with hypertension, coronary artery disease, or obesity ($p = 0.01$). This group also received diuretics at a median of 9.7 hours vs. 17.3 hours ($p = 0.01$). The patients that received early diuretics received significantly higher doses on each post-operation ($p < 0.05$) except for on day 5 ($p = 0.61$). The most frequent operation for the patients that met inclusion criteria was an isolated CABG (65%). The median cardiopulmonary bypass time was 97.5 minutes for the early diuretic group and 105 minutes for the late diuretic group. However, very few patients had this information readily retrievable or documented ($n = 15$) in the location outlined within the protocol.

CONCLUSIONS: The early diuretic group had significantly more patients with coronary artery disease, obesity, or hypertension. Despite these differences, patients who received diuretics early post-operatively following TIMP-

2 * IGFBP-7 testing were not at an increased risk for developing AKI when compared to patients whose diuretics were deferred to a later start time.

10:20am – 10:35am R **Andexanet alfa vs. 4FPCC for the reversal of apixaban or rivaroxaban associated bleeding** Parthenon 1

Presenters: Justin White

TITLE: Andexanet alfa vs. 4FPCC for the reversal of apixaban or rivaroxaban associated bleeding

AUTHORS: Justin White, Kevin Lynch, Charleen Melton, Katie McLaurin

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: One of the most dangerous adverse events associated with direct oral anticoagulant (DOAC) therapy is major hemorrhage. American Heart Association and Society of Critical Care Medicine guidance recommends reversing Factor Xa-inhibitors with andexanet alfa (Andexxa®) in the setting of major hemorrhage. When andexanet alfa is not available, guidelines recommend repleting coagulation factors with four-factor prothrombin complex concentrate (4F-PCC). Limited previous literature exists comparing patient-specific outcomes in those receiving andexanet alfa vs. 4F-PCC. The purpose of this study was to further explore the functional outcome of patients treated with andexanet alfa vs. 4F-PCC for an apixaban or rivaroxaban associated major hemorrhage.

METHODOLOGY: A single-center retrospective chart review was conducted. A report was generated to identify utilization of 4F-PCC at the study site from August 15, 2015, through February 14, 2019, and andexanet alfa from February 15, 2019, through August 14, 2022. A two-arm study design was developed for comparison. One arm included patients who received 4F-PCC for an apixaban or rivaroxaban associated hemorrhage. The other arm included patients who received andexanet alfa for the reversal of an apixaban or rivaroxaban associated hemorrhage. Inclusion criteria consisted of patients 18 years and older, patients receiving andexanet alfa or 4F-PCC for apixaban or rivaroxaban reversal, and patients presenting with a major hemorrhage. Exclusion criteria consisted of patients with a baseline Modified Rankin Score (mRS) greater than three prior to admission, patients who received 4F-PCC at a free-standing emergency department, incarcerated patients, pregnant patients, and patients transferred to another hospital. The primary endpoint of this study was positive functional outcome, defined as a modified Rankin Score (mRS) of less than four at hospital discharge. Secondary endpoints included length of ICU stay, length of hospital stay, in-hospital mortality, time from study medication order to administration, and thrombotic event(s) within seven days of study medication administration.

RESULTS: TBD

CONCLUSIONS: TBD

10:20am – 10:35am R **Development of an Anticoagulation Stewardship Team at a Large Community Hospital** Olympia 1

Presenters: Callie Owen

TITLE: Development of an Anticoagulation Stewardship Team at a Large Community Hospital

AUTHORS: Callie Owen, Monroe Crawley

OBJECTIVE: Identify rationale for anticoagulation stewardship services; Describe methods to secure administrative leadership commitment for the development of an anticoagulation stewardship program.

SELF ASSESSMENT QUESTION: In what ways could an anticoagulation stewardship program improve patient safety?

BACKGROUND: Anticoagulation has been shown to be an area of concern for patient safety across the United States. There have been increased efforts nationwide to combat this issue and improve the safety surrounding this class of medications. These efforts have resulted in the development and implementation of various organized anticoagulation stewardship programs. Since implementation, various programs have been found to improve patient safety, reduce medication errors, and reduce overall costs associated with anticoagulation. The purpose of this project is to identify rationale and develop a pharmacist driven anticoagulation stewardship program at a large community hospital.

METHODOLOGY: Guidance published by the Anticoagulation Forum in collaboration with the National Quality Forum was used to assist in the development of a program framework. Documented safety events were reviewed and problems or events with multiple occurrences were identified. Areas of interest were discussed with hospital administration, leading to the evaluation of areas in which a significant impact could be made. These areas include major bleeding related to oral anticoagulants, recombinant factor VIIa utilization, and anticoagulant related safety events. Selected areas were evaluated for potential pharmacy intervention and projected stewardship impact. Data was collected to assess feasibility for effective improvement in the selected areas and institutional impact. Following assessment, interventional stewardship strategies were identified and developed.

RESULTS: Stewardship services are predicted to result in a 15% reduction in ADRs, a 60% reduction of rFVIIa inappropriate use, an 88% reduction of aPCC inappropriate use, and a 20% reduction in bleeding and thrombotic complications.

CONCLUSIONS: The implementation of a pharmacist driven anticoagulation stewardship program would be a proven benefit to the institution by reducing adverse events associated with anticoagulants, establishing expert guidance regarding perioperative management of anticoagulation, and optimizing the use of coagulation factor products.

10:20am – 10:35am R **Evaluating the Efficacy and Safety of 4F-PCC for Reversing Factor Xa Inhibitor-Related GI Bleeds** Olympia 2

Presenters: Mariam Agbe

TITLE: Evaluating the Efficacy and Safety of 4F-PCC for Reversing Factor Xa Inhibitor-Related GI Bleeds

AUTHORS: Mariam Agbe, Caroline Cox

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Oral Factor Xa (FXa) inhibitors are used to treat and prevent thromboembolic events. However, one risk associated with FXa inhibitors is an increased risk of gastrointestinal (GI) bleeding. The American Society of Hematology suggests four-factor prothrombin complex concentrate (4F-PCC) for reversal of life-threatening bleeds caused by FXa inhibitors. However, the American College of Gastroenterology suggests against PCC for GI bleeding associated with FXa inhibitors. The role of 4F-PCC in this population remains ambiguous due to these opposing recommendations. This study aims to further elucidate the role of 4F-PCC in the reversal of oral FXa inhibitor-related GI bleeding.

METHODOLOGY: This study was a multicenter, retrospective cohort study that compared patients who received 4F-PCC for reversal of oral FXa inhibitor-related GI bleeding and those who did not. This study included adult patients that presented to the emergency department with GI bleeding between November 1, 2013 and June 30, 2023, and were receiving apixaban, rivaroxaban, or edoxaban prior to admission. Exclusion criteria included use of 4F-PCC for an indication not associated with GI bleeding, use of 4F-PCC for perioperative reversal, pregnant or lactating patients, and patients who were incarcerated. The primary outcome was hemostatic efficacy according to the Sarode et al. criteria for excellent or good hemostasis. Secondary outcomes included the incidence of venous thromboembolism within 30 days of 4F-PCC administration, GI bleeding recurrence within 30 days of discharge, hospital length of stay in days, intensive care unit length of stay in days, and emergency department length of stay in hours. Mortality was evaluated at 30 days following 4F-PCC administration.

RESULTS: In progress

CONCLUSIONS: In progress

10:20am – 10:35am D **Impact of reduced default dispense quantities for opioid orders on initial prescription days' supply** Athena J

Presenters: Jocelyn McDougal

TITLE: Impact of reduced default dispense quantities for opioid orders on initial prescription days' supply

AUTHORS: Jocelyn McDougal, Kimberly Bowers, Erin Himes

OBJECTIVE: Recognize appropriate prescribing practices of opioids for the treatment of acute pain

SELF ASSESSMENT QUESTION: Select the true statement(s) regarding opioid prescribing

BACKGROUND: Opioid use for greater than 7 days is associated with serious risks including misuse, overdose, and death. Previous studies that examined the effects of state legislation restricting the number of days opioids can be prescribed in an opioid naïve patient have shown legal limits are associated with modest reductions in opioid treatment durations. The purpose of this study was to determine if reducing the default dispense quantities in pharmacy content of the electronic medical record (EMR) impacted the days' supply filled for new opioid prescriptions in opioid naïve patients.

METHODOLOGY: This was a retrospective, observational, IRB-exempt cohort study conducted within an integrated healthcare delivery system. On June 28, 2023, the default dispense quantities for formulary opioid orders were updated to display 3-, 5-, and 7- day options as the preferred treatment regimens for acute pain. Pharmacy claims data was utilized to identify adult opioid naïve patients who received at least one opioid prescription in either Quarter 2 (April 1, 2023 - June 30, 2023) or Quarter 3 (July 1, 2023 - September 30, 2023). Opioid naïve was defined as having no outpatient opioid prescription within 90 days. The primary objective compared the percentage of initial opioid prescriptions for greater than 7 days sold in Quarter 2 and Quarter 3, before and after pharmacy content updates were made to the default dispense quantities for opioid orders in the EMR. Secondary objectives further stratified the days' supply to compare the number of prescriptions for greater than 7-14 days, greater than 14-30 days, and greater than 30 days before and after EMR updates and evaluated differences in prescribing patterns of internal versus external prescribers.

RESULTS: A total of 4,245 prescriptions from internal prescribers were sold in 2023 Q2 and 488 (11.5%) had a duration greater than 7 days. In 2023 Q3, 4,157 prescriptions were sold and 446 (10.7%) had a duration greater than 7 days. There was an absolute decrease of 0.77% in total prescriptions written for greater than a 7-day supply, however the results were not statistically significant (p=0.26). A subgroup analysis demonstrated that from 2023 Q2 to 2023 Q3 there was a decrease in opioids prescriptions for >7-14 days (310 to 272) and >14-30 days (177 to 171) or 7.3% vs 6.5% and 4.2% vs 4.1%, respectively. There was an increase in opioid prescriptions for > 30 days, from 1 to 3 or 0.02% vs 0.07%. In 2023 Q3, internal prescribers who had access to the preference list updates wrote more prescriptions for greater than 7 days compared to external providers who did not have access to preference list updates (10.7% vs 7%, respectively).

CONCLUSIONS: Updates to opioid orders on the KPGA department preference lists that defaulted to shorter durations for acute opioid medications did not significantly impact the days' supply of initial opioid prescription claims from internal KPGA providers. The lack of overall change in opioid durations indicates that a system-wide update to pharmacy content in the EMR alone is not enough to reduce the days' supply of initial opioid prescriptions. The findings of this study suggest that pharmacy-led interventions must explore and utilize additional tools in order to positively influence prescribing decisions.

10:20am – 10:35am Y **Evaluation of antibiotic de-escalation for autologous SCT patients with febrile neutropenia** Athena A

Presenters: Marshall Winget

TITLE: Evaluation of antibiotic de-escalation for autologous SCT patients with febrile neutropenia

AUTHORS: Marshall Winget, Katie Gatwood, Reena Jayani, Elizabeth McNeer, Leena Choi, Lindsay Orton

OBJECTIVE: Describe the benefits of de-escalation of BSAs in appropriate autologous SCT patients with FN.

SELF ASSESSMENT QUESTION: Which of the following patients should be considered for de-escalation of BSAs for FN? (MCQ)

BACKGROUND: Febrile neutropenia (FN) is a complication in upwards of 90% of autologous stem cell transplants (ASCT). Prompt initiation of empiric broad-spectrum antibiotics (BSAs) with coverage of gram-negative bacteria (i.e. Pseudomonas aeruginosa) is recommended to decrease morbidity and mortality associated with potential infection. While guidance exists to recommend prompt empiric BSAs, there is little agreement on when to de-escalate to standard antibiotic prophylaxis for a fever of unknown origin (FUO). The purpose of this retrospective cohort study is to analyze the impact of a protocol on the duration of empiric BSA use by evaluating outcomes before and after implementation, specifically in patients who remain neutropenic throughout the FUO period.

METHODOLOGY: This single-center, IRB-approved, retrospective cohort study analyzed the effects of implementing an antibiotic de-escalation protocol in adults who underwent ASCT and experienced an episode of FN from January 2018 to December 2022. The protocol was utilized in patients who remained hemodynamically stable and afebrile for 48 hours and without a documented infection after initiating BSA for FN. Patients were stratified into two groups based on whether they were treated for febrile neutropenia pre- or post-early de-escalation protocol implementation. The primary outcome was the total number of BSA days within 30 days of index FN episode. Secondary outcomes include rates of recurrent fever, documented infection, and readmission (all within 30 days of index FN episode), as well as length of hospital stay, intensive care unit (ICU) admission, and rates of Clostridioides difficile infection (CDI).

RESULTS: A total of 366 patients had a FN episode between January 2018 and December 2022. After excluding patients who had a documented infection associated with FN (pre-protocol, n = 21; post-protocol, n =22), and those who did not meet de-escalation criteria in the post-protocol group (n = 128), a total of 195 patients were included in the analysis (pre-protocol, n = 120; post-protocol, n = 75). The median age was 58 years, and the majority of patients were white (84.6%) and male (61.5%). Multiple myeloma was the most common underlying disease (55.4%). Cefepime was the most frequently used BSA (95.4%). The primary outcome of median BSA duration was 2 days shorter in the post-protocol group (4.7 days vs. 2.7 days, p less than 0.001). The median length of stay during index FN episode was 4.8 days in both groups (p = 0.68). Readmission within 30 days occurred in 13.3% and 22.7% of patients in the pre- and post-protocol groups, respectively (p = 0.091). Similar rates of recurrent fever occurred in both groups (17% vs. 12%, p = 0.73). Following initial BSA, documented infections were reported in 2 (1.7%) pre-protocol and 5 (6.7%) post-protocol patients (p = 0.068). ICU admissions (4% vs. 2%, p = 0.80) and CDIs (1% vs. 1%, p = 0.74) did not significantly differ between pre- and post-protocol groups.

CONCLUSIONS: Implementation of an early antibiotic de-escalation protocol for ASCT patients who develop FN resulted in a shorter BSA duration without adversely affecting clinical outcomes including recurrent fevers, documented infections, and readmissions. The present study adds to existing evidence that early deescalation of BSA in FN patients with a FUO who are afebrile and clinically stable at 48 hours, irrespective of neutrophil count, is safe and reduces unnecessary antibiotic use.

10:40am – 10:55am M **Alabama Pharmacist Confidence Comfort and Experience Screening for and Addressing SDoH** Athena H

Presenters: Martha Schanandore

TITLE: Alabama Pharmacist Confidence Comfort and Experience Screening for and Addressing SDoH

AUTHORS: Mattie Schanandore Courtney Gamston Lindsey Hohmann Lena McDowell Greg Peden Kimberly Braxton Lloyd

OBJECTIVE: To assess AL pharmacists' comfort and experience screening for SDoH & addressing social needs

SELF ASSESSMENT QUESTION:

BACKGROUND: Social determinants of health (SDoH) account for approximately 50-60% of health outcomes. Adverse SDoH negatively impact communities throughout Alabama. Poverty rates for rural and urban communities within the state are 18.4% and 16.1%, respectively, and are above the national rate by over 5%, and food insecurity impacts 16.3% of Alabamians compared to 12.3% nationally. Social risks are the adverse social conditions associated with poor health, whereas social needs are the adverse social conditions an individual seeks assistance with immediately. Pharmacists are uniquely positioned to screen for social risks and address social needs. However, previous research has demonstrated that pharmacists lack confidence and experience performing this screening. The purpose of this study is to assess Alabama pharmacists' knowledge, comfort, and experience screening for SDoH and their confidence addressing social needs.

METHODOLOGY: Alabama pharmacists were incentivized to complete an anonymous survey to understand their experiences with screening for and addressing adverse SDoH. The survey was distributed via email and collected participant demographic and practice information, practice setting, and patient population demographics. Pharmacist confidence and comfort with screening, identifying, and making referrals for social risks, current screening and referral activities, awareness of resources to assist patients, and desire to implement screening and referral services at their practice site were assessed. Perceptions of the importance and feasibility of implementing these services were assessed. Findings were reported as descriptive statistics. Relationships between survey answers, pharmacist demographics, and practice setting were assessed utilizing correlation analyses.

RESULTS: A total of 324 Alabama pharmacists completed the survey. The mean age was 45±9.5 years. Seventy-one percent (n=230) of respondents identified as female. Of the pharmacists that completed the survey, 65% work in the community setting. There were 33 respondents that indicated they do not work directly with patients. Of those that identified directly serving a patient population (n=291), 87.6% reported financial strain as the most prevalent social risk factor among their patient population. More than half of the respondents serving patients reported lacking confidence in their ability to address social needs in their patient population. In addition, 55% of the respondents reported not feeling equipped to use available resources to address social needs. Thirty-two percent indicated currently screening for social risks at their practice site. Social workers were most commonly identified as the professionals conducting the SDoH screenings (72%). Pharmacists identified lack of time (66%) as the most common barrier to screening for SDoH. Respondents identified lack of resources (50%), personnel (45%), and confidence (29%), and uncertainty of how to link patients to available resources (31%) as other common barriers. Most survey respondents (56%) felt pharmacists could make a positive impact on social risks in their patient population.

CONCLUSIONS: Alabama pharmacists reported lack of comfort and experience screening patients for social risks and barriers to both screening for and addressing identified needs. Responses suggest a need for more education and training to equip pharmacists to identify and address social needs in order to improve the health of the populations they serve.

10:40am – 10:55am G **Pharmacist Follow-Up After Severe Hypoglycemia in Older Adult Veterans** Athena J

Presenters: My Nguyen

TITLE: Pharmacist Follow-Up After Severe Hypoglycemia in Older Adult Veterans

AUTHORS: My Nguyen, LaWanda Kemp, Anna Mirk, Kimberly Manns

OBJECTIVE: Describe the role of pharmacists in hypoglycemia management among older adults with type 2 diabetes mellitus.

SELF ASSESSMENT QUESTION: What is a reasonable approach or intervention to manage hypoglycemia in older adults?

BACKGROUND: Evaluate the frequency of pharmacy follow-up after a severe hypoglycemic event in a population of older adult Veterans with type 2 diabetes mellitus (T2DM) at the Atlanta Veterans Affairs Health Care System (VAHCS).

METHODOLOGY: This was a single-center, retrospective quality improvement project conducted within the Atlanta VAHCS. Eligible index encounters were the earliest emergency department (ED) encounter by a Veteran ages 65 years or older with T2DM for a hypoglycemic event between June 1st, 2017 and June 1st, 2022. The primary endpoint was the frequency of pharmacist follow-up after the index encounter. The secondary endpoints included repeat ED visits or hospitalizations for hypoglycemia, changes in T2DM medications, and changes in hemoglobin A1c. Subgroup analyses were conducted for Veterans ages less than 65 years. Data was extracted from the Corporate Data Warehouse using Structured Query Language. Descriptive statistics were used to assess findings.

RESULTS: A total of 288 encounters met inclusion and were considered index encounters for hypoglycemia, 160 (55.6%) of which comprised of older adults. Among these Veterans, only 76 (47.5%) received a follow-up visit with a pharmacist for T2DM within 4 weeks. Repeat encounters for hypoglycemia were infrequent, but were approximately twice as often for older (11 encounters) relative to younger (5 encounters) Veterans. The majority of older adult Veterans received at least 1 refill for an insulin product (97 [60.6%]), a sulfonylurea (20 [12.5%]), or both agents (9 [5.6%]) within 120 days prior to the index encounter. There were 9 (5.6%) older adult Veterans who received a refill for a T2DM medication that was neither an insulin product or a sulfonylurea. Within 120 days after the index encounter, Veterans with at least 1 refill for a sulfonylurea agent decreased (11 [6.9%), in favor of non-insulin and non-sulfonylurea products (16 [10.0%]). The mean (+/- SD) Hgb A1c of older adult Veterans was largely similar at baseline and at follow-up: 7.7% +/- 1.7% and 7.6% +/- 1.8%, respectively. The mean (+/- SD) days for collection were variable, at 45.1 +/- 50.3 days prior to the index encounter and 218.2 +/- 103.4 days following the index encounter, respectively.

CONCLUSIONS: In this review, older Veterans comprised more than half of ED encounters for severe hypoglycemia and were twice as likely to have a recurrent event, relative to their younger counterparts. Despite this, less than half of these Veterans received a follow-up visit with a pharmacist within 4 weeks. These findings inform the need for systemic changes, such as protocols for follow-up after an acute severe hypoglycemic event, consideration for pharmacy referral, and continuing education efforts.

10:40am – 10:55am M **Pharmacist-Led Interventions for T2DM by Assessing Appropriateness of Long-term Pioglitazone Use** Athena G

Presenters: Anna Hale

TITLE: Pharmacist-Led Interventions for T2DM by Assessing Appropriateness of Long-term Pioglitazone Use
AUTHORS: Anna Hale
OBJECTIVE: Understand risks and benefits for the use of pioglitazone in treatment of Type 2 Diabetes
SELF ASSESSMENT QUESTION: What are risk factors for bladder cancer?
BACKGROUND: Pioglitazone, a thiazolidinedione, is indicated for the treatment of Type 2 Diabetes (T2DM). This drug has many benefits such as preserving pancreatic beta cell function, being a low-cost option for T2DM treatment, and having a protective effect in Non-Alcoholic Fatty Liver Disease (NAFLD) and nonalcoholic steatohepatitis (NASH) by contributing to the reversal of liver fibrosis. However, the long-term use of pioglitazone can decrease bone mineral density, contributing to osteoporosis and has been shown to increase the risk of bladder cancer when taken for greater than 2 years with cumulative doses exceeding 28,000mg. Additional risks for bladder cancer include history of bladder cancer, smoking tobacco, age greater than 55, white races and men. This quality improvement initiative aims to identify patients who have been taking pioglitazone for more than 2 years and weigh the benefits and risk of continuing it for the treatment of T2DM.
METHODOLOGY: This project was designated as “Not Human Subject Research” by Mountain Area Health Education Center’s (MAHEC) Institutional Review Board. A retrospective chart review was performed using the electronic medical record of various MAHEC Family Medicine Office locations. Initially, data was captured for all patients with an active pioglitazone prescription on their medication list. Then individual chart reviews were performed to ensure pioglitazone had remained in a patient’s active medication list for more than 2 years. Patients were required to have a diagnosis for T2DM. Patients who had not been seen by a healthcare provider in the past year were excluded. Other comorbid disease state and medication (osteoporosis, NAFLD, NASH, tobacco use disorder and insulin use) information was collected to assess risk vs. benefit of pioglitazone as the drug of choice to treat T2DM. A pharmacist reviewed risks versus benefits and made a recommendation to stop or lower the pioglitazone dose if the risks outweighed the benefits. Shared decision making with the patient and A1c control were considered. Following the recommendations, patients could elect to continue pioglitazone.
RESULTS: Pharmacist-led recommendations were succesful in de-prescribing pioglitazone. Of the patients who completed visits, 81.4% of the time the pioglitazone was either stopped or decreased in dose. The average dose of pioglitazone before and after the intervention was 31.6mg and 9.2mg respecitvley. The most common changes made by providers were not changing the pioglitazone dose (18.5%) and starting an SGLT2i when stopping pioglitazone (18.5%). The second most common changes made by providers were stopping pioglitazone without prescribing an alternative (14.8%) and decreasing pioglitazone dose without prescribing an alternative (14.8%). The remaining recommendations included starting a GLP-1 agonist or increasing a GLP-1 agonist dose when decreasing the pioglitazone dose, switching a GLP-1 agonist to a GLP-1/GIP agonist, switching an oral to injectable GLP-1 agonist or increasing an SGLT2i dose when decreasing a pioglitazone dose.
CONCLUSIONS: Pharmacist-led deprescribing was effective in reducing the amount of pioglitazone patients were taking, thus limiting adverse long-term effects of pioglitazone use.

10:40am – 10:55am C **Warfarin versus Apixaban for Venous Thromboembolism in Hemodialysis Patients** Parthenon 2

Presenters: Chan Woo Kim

TITLE: Warfarin versus Apixaban for Venous Thromboembolism in Hemodialysis Patients

AUTHORS: Chan Woo Kim, Chelsea Moran, Natalie Morgan, Kristin Fernandes, Michael Byers, NaaDede Badger-Plange

OBJECTIVE: Compare bleeding risk of warfarin and apixaban in hemodialysis patients being treated for VTE

SELF ASSESSMENT QUESTION:

BACKGROUND: Recent data suggests that individuals with chronic kidney disease (CKD) possess a higher likelihood of developing VTE. Additionally, reduced kidney function heightens the susceptibility to bleeding, mainly attributed to platelet dysfunction, especially in the advanced stages of the disease. Current guidelines advocate for the use of direct oral anticoagulants (DOACs) over warfarin in most patients with VTE. This preference is based on the findings from trials demonstrating lower rates of bleeding with DOACs and less frequent monitoring. However, it is important to note that the American College of Chest Physicians (CHEST) guidelines from 2016 recommend warfarin as a preference when creatinine clearance (CrCl) falls below 30 mL/min for VTE treatment. Additionally, the American Society of Hematology (ASH) guidelines from 2020 specify that the recommendation of DOACs over warfarin may not be applicable to CKD patients with CrCl below 30 mL/min. The most recent literature provides promising but inconclusive data regarding the use of DOACs in HD patients especially in patients with VTE.

METHODOLOGY: This was a retrospective chart review of adult patients with receiving HD who were admitted to a Piedmont Healthcare system hospital between January 2017 and December 2022 with an acute VTE were treated with apixaban or warfarin. Patients were excluded if their oral anticoagulant was switched or discontinued. Patients were excluded if they were receiving peritoneal dialysis (PD), or HD was discontinued. The primary endpoint was to compare major bleeding occurrence as defined by the International Society of Thrombosis and Hemostasis (ISTH) within one year. Secondary endpoints included clinically relevant non-major bleeding, minor bleeding, VTE recurrence rate, readmission related to anticoagulation or VTE concern, and all-cause mortality at one year. Statistical analysis was completed using the Chi-squared test of independence. A p-value less than 0.05 was considered statistically significant.

RESULTS: In the assessed cohort, 90 patients from each group were included for analysis. No statistically significant difference was observed in major bleeding incidence within the one-year timeframe between warfarin and apixaban (OR 0.89; 95% CI 0.30-2.60; p=0.81). Additionally, there were no significant differences noted in clinically relevant non-major bleeding (OR 0.82; 95% CI 0.30-2.17; p=0.62), minor bleeding (OR 0.57; 95% CI 0.21-1.46; p=0.21), VTE recurrence rate (OR 1.54; 95% CI 0.73-3.37; p=0.23), readmission related to VTE concern (OR 1.67; 95% CI 0.68-4.32; p=0.23), or all-cause mortality in one year (OR 0.94; 95% CI 0.45-1.98; p=0.86).

CONCLUSIONS: Based on this observational study, apixaban demonstrated no statistically significant difference in major bleeding risk or other secondary endpoints. Study limitations included
the retrospective design, and small sample size. Prospective trials with a larger sample size are warranted in this patient population.

10:40am – 10:55am R **Comparing Outcomes Between Phenobarbital and Benzodiazepines for Alcohol Withdrawal Syndrome** Olympia 2

Presenters: Jack Cederberg

TITLE: Comparing Outcomes Between Phenobarbital and Benzodiazepines for Alcohol Withdrawal Syndrome

AUTHORS: Jack Cederberg, Kaitlyn Ledet, Christina Metrejean

OBJECTIVE: Compare the incidence of severe alcohol withdrawal if treated with phenobarbital or benzodiazepines

SELF ASSESSMENT QUESTION: What are pertinent differences between the utilization of benzodiazepines and phenobarbital for AWS?

BACKGROUND: Abrupt discontinuation of alcohol intake in individuals with alcohol use disorder (AUD) can cause the development of alcohol withdrawal syndrome (AWS). Severe manifestations include alcohol withdrawal seizures and delirium tremens, which are associated with increased morbidity and mortality. Benzodiazepines have been the mainstay of therapy for the management of AWS; however, the role of phenobarbital as an alternative agent has shown promising outcomes in retrospective analyses. The purpose of this study was to evaluate the development of severe alcohol withdrawal complications in patients receiving phenobarbital compared to benzodiazepines for the treatment of AWS.

METHODOLOGY: In this single-center, retrospective review, participants will be included if they are adults at least 18 years old and are admitted for inpatient services with known or suspected AWS, or if they are at high risk for the development of AWS. Participants will be excluded if they are pregnant, require mechanical ventilation prior to the initiation of either study drug, have concurrent outpatient use of either study drug, have a known contraindication to either study drug, left against medical advice, or in cases in which peripheral access could not be obtained. The primary outcome is the development of severe alcohol withdrawal complications, including seizures, hallucinations, and delirium. Secondary outcomes will include hospital length of stay, ICU length of stay, medication adverse effects, duration of treatment, and mechanical ventilation requirements. A reduction of 50% in the primary outcome is defined as clinical significance for this study. To achieve 80% power (alpha = 0.05) while estimating a 5-10% incidence of the primary outcome, we aim to assess 742 patient encounters. This study was endorsed by the Franciscan Missionaries of Our Lady Institutional Review Board.

RESULTS: A total of 197 patients were included in the final analysis which included 58 patients in the phenobarbital group and 139 patients in the benzodiazepine group. There were no differences between the groups in terms of demographic characteristics. For the primary outcome, there was a reduction in delirium (p=0.002) and hallucinations (p=0.005) in the phenobarbital group, however no difference in seizures. There was an overall reduction in hospital length of stay, number of dose administrations, duration of treatment, and hospital admissions among the phenobarbital group. There was no difference in adverse events, mechanical ventilation requirements, ICU length of stay, or ICU admissions between both treatment groups.

CONCLUSIONS: Phenobarbital reduces the development of hallucinations and delirium in patients with AWS when compared to benzodiazepines without any increased risk of adverse events.

10:40am – 10:55am R **Implementation of Tenecteplase for Acute Ischemic Stroke at a Large Community Hospital** Olympia 1

Presenters: Carolina Woloszyn

TITLE: Implementation of tenecteplase for acute ischemic stroke at a large community hospital

AUTHORS: Carolina Woloszyn, Nellie McKee, Jeremy Ray, Kenneth Boley, Holly Clark

OBJECTIVE: Transition and implement tenecteplase as the preferred fibrinolytic for AIS within a large community hospital.

SELF ASSESSMENT QUESTION:

BACKGROUND: Alteplase currently stands as the sole FDA-approved fibrinolytic therapy for acute ischemic stroke (AIS). Studies have indicated that tenecteplase demonstrates non-inferiority compared to alteplase. At Huntsville Hospital, alteplase has been utilized as the preferred fibrinolytic for AIS. However, tenecteplase offers several advantages over alteplase, including lower cost, easier reconstitution, simpler administration, and improved door-to-needle time for stroke patients. The purpose of this project was to transition and implement tenecteplase as the preferred fibrinolytic for AIS within a large community hospital.

METHODOLOGY: A retrospective chart review was conducted to analyze patients who received fibrinolytic therapy for acute ischemic stroke between January 2023 and March 2024. Eligible participants included patients aged 19 years and older who were treated with IV fibrinolytics. The study assessed intravenous fibrinolytic practices including door-to-needle times, as well as the time from order entry to verification and verification to administration. Data from both pre- and post-implementation of tenecteplase will be compared to evaluate any differences.

RESULTS: In the study evaluated, 69 patients received alteplase compared to 8 patients who received tenecteplase for AIS. The primary outcome demonstrated an average door-to-needle time of 73 minutes (SD = 28.5) with alteplase compared to 65 minutes (SD = 12.8) with tenecteplase. Secondary outcomes resulted in the average time from order entry to administration decreasing from 24 minutes (SD = 11.3) to 16 minutes (SD = 8.3), and the average time from order verification to administration dropping from 19 minutes (SD = 9.2) to 12 minutes (SD = 7.1). Notably, one adverse drug reaction was reported in the tenecteplase group, indicating the need for ongoing monitoring despite the potential efficiency enhancements observed with tenecteplase.

CONCLUSIONS: The implementation and transition to tenecteplase for AIS has demonstrated promising outcomes in achieving its goals of improving door-to-needle time, facilitating bedside reconstitution, and generating cost savings. With the currently available post-implementation data showing a reduction in door-to-needle time, ongoing data collection over the next year will provide a comprehensive understanding of the true impact of this transition at a large community hospital.

10:40am – 10:55am R **Timing of Dexmedetomidine Initiation on Development of New-Onset Atrial Fibrillation in a MICU** Parthenon 1

Presenters: Madison Sanders

TITLE: Timing of Dexmedetomidine Initiation on Development of New-Onset Atrial Fibrillation in a MICU

AUTHORS: Madison A. Sanders, PharmD; J. Luke Britton PharmD, BCPS, BCCCP; J. Tyler Mitchell, PharmD, BCPS

OBJECTIVE: Discuss the relationship between dexmedetomidine and new-onset atrial fibrillation

SELF ASSESSMENT QUESTION:

BACKGROUND: New-onset atrial fibrillation is a common arrythmia impacting critically ill patients and can be triggered through structural and electrical remodeling. These may include sepsis, vasoactive medications, and mechanical ventilation. While there is evidence regarding the use of dexmedetomidine for reduction of new-onset atrial fibrillation in post-cardiac surgery patients, data for medical intensive care unit (ICU) patients is lacking. The objective of this study was to determine whether there was a difference in incidence of new-onset atrial fibrillation between patients who were initiated on dexmedetomidine within 48 hours or after 48 hours of mechanical ventilation.

METHODOLOGY: This institutional review board approved retrospective chart review took place at a 344-bed community hospital with a 24-bed medical ICU in Montgomery, AL. The electronic medical record was used to identify adult patients treated with dexmedetomidine. Patients admitted to the medical ICU who received at least one dose of dexmedetomidine after initiation of mechanical ventilation were included. Patients admitted to the cardiovascular ICU, undergoing cardiovascular surgery, or with a history of atrial fibrillation were excluded. The following data was collected: patient demographics, medical history, length of stay, vital signs, laboratory data, and concomitant medication orders with vasopressors, sedative agents, and antiarrhythmics. Provider documentation was reviewed to determine purpose of admission and need for mechanical ventilation. The primary outcome was the incidence of new-onset atrial fibrillation in patients initiated on dexmedetomidine at less than 48 hours and greater than or equal to 48 hours after initiation of mechanical ventilation. Secondary outcomes included time to new-onset atrial fibrillation, ICU length of stay, duration of mechanical ventilation, and in-hospital mortality. Patients meeting systemic inflammatory response syndrome criteria on admission were analyzed as a subgroup. Eighty-eight patients per group were needed to achieve 80 percent power to detect a difference in incidence. Appropriate statistical tests were used to assess collected data.

RESULTS: A total of 100 patients were included in this study with 63 patients in the less than 48 hours group and 37 patients in the greater than or equal to 48 hours group. There was one incidence (1.6%) of new-onset atrial fibrillation seen in the less than 48 hours group and five incidences (13.5%) in the greater than or equal to 48 hours group (P = 0.03). Time to development of new-onset atrial fibrillation was 30.5 days in the less than 48 hours group and 8.2 days in the greater than or equal to 48 hours group. Other secondary outcomes of interest include: ICU length of stay was 10.2 days and 17.9 days (P = 0.002), duration of mechanical ventilation was 5.1 days and 13.3 days (P 0.0001), and in-hospital mortality was 13 patients (21%) and 8 patients (22%) (P = 0.45) in the less than 48 hours and greater than or equal to 48 hours groups, respectively.

CONCLUSIONS: Patients initiated on dexmedetomidine after 48 hours of mechanical ventilation had a significantly increased incidence of developing new-onset atrial fibrillation when compared to patients initiated on dexmedetomidine within 48 hours of mechanical ventilation. ICU length of stay and duration of mechanical ventilation were significantly longer in the greater than 48 hours group. There was no difference in in-hospital mortality. Limitations of this study include small sample size and retrospective nature. A larger, ideally prospective study is warranted to further evaluate these findings.

10:40am – 10:55am F **Evaluation of serotonin syndrome with linezolid and moderate-to-high-risk serotonergic agents** Athena C

Presenters: Jennifer Liriano-Suarez

TITLE: Evaluation of serotonin syndrome with linezolid and moderate-to-high-risk serotonergic agents

AUTHORS: Jennifer Liriano-Suarez, Katherine Medley, Robin Tumlinson, Samantha Yeager Walker, Brandon Hawkins

OBJECTIVE: Identify medications that have the potential to cause serotonin syndrome

SELF ASSESSMENT QUESTION: Which of the following medications could be contributing to JL's presentation?

BACKGROUND: Serotonin syndrome is a rare but potentially serious adverse event associated with concomitant use of linezolid and serotonergic agents. The FDA-approved labeling for linezolid recommends discontinuing serotonergic agents when using the antibiotic due to its reversible, nonselective monoamine oxidase inhibitor (MAOI) activity. Despite the theoretical concerns surrounding linezolid and serotonin syndrome, the actual incidence has not been well-established. Retrospective studies involving a variety of serotonergic agents have suggested serotonin syndrome may occur in less than 1% of patients. Additional post-marketing reports suggest some agents may be more associated with serotonin syndrome and linezolid use than others (e.g. citalopram, escitalopram, and methadone). This study evaluated the incidence of serotonin syndrome in patients who received linezolid with at least one prespecified “moderate-to-high-risk” serotonergic agent while hospitalized at our institution.

METHODOLOGY: This single-center, retrospective observational study included adult patients admitted to a tertiary referral, academic medical center. Patients were eligible for inclusion if they received at least two doses of linezolid concomitantly with at least one prespecified “moderate-to-high-risk” agent: escitalopram, citalopram, or methadone between January 1, 2018, and December 31, 2022. Fentanyl was also included due to its use with linezolid in intensive care settings. The primary outcome evaluated the incidence of in-hospital serotonin syndrome based on review of the discharge summary. The primary outcome was further categorized by suspected serotonin syndrome and those definitively diagnosed with serotonin syndrome. Secondary outcomes included linezolid duration of therapy, and dose reductions of prespecified serotonergic agents relative to the home medication dose. The total number of serotonergic agents given concomitantly with linezolid was also reviewed. Descriptive statistics were used for analysis.

RESULTS: 710 patients were screened for inclusion, with 604 patients enrolled. For the primary outcome, approximately 0.17% (1/604) of patients receiving linezolid concomitantly with any of the prespecified “moderate-to-high risk” serotonergic agents had documentation of suspected serotonin syndrome in their discharge summary, and zero cases were identified as definitively diagnosed. The median duration of linezolid therapy was 4 (2-6) days. Approximately 87% of patients received citalopram (256 patients) or escitalopram (268 patients) concomitantly with linezolid. Around 31% of patients received a dose adjustment of one of the serotonergic agents when started on linezolid. 74% of the patients were on at least one serotonergic agent while 27% received two or more. Less than 1% of the cohort received up to a maximum of four concomitant serotonergic agents.

CONCLUSIONS: The incidence of serotonin syndrome was low among patients receiving linezolid and concomitant moderate to high risk serotonergic agents. Among those receiving multiple agents, including antidepressants and opioids, the risk of serotonin syndrome appears to be minimal. These results suggest that concomitant use of linezolid with moderate to high risk serotonergic agents is likely safe, at least for short courses.

10:40am – 10:55am T **Guideline-Driven Chronic Hyponatremia Correction in Adult Inpatients in a Community Health System** Athena B

Presenters: Roobina Didarians

TITLE: Guideline-Driven Chronic Hyponatremia Correction in Adult Inpatients in a Community Health System

AUTHORS: Roobina Didarians, Catherine Wente, Justin Hodges, Ruthanne Baird, Kristen Keen, Dustin Wilson,

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Hyponatremia, denoted by a serum sodium concentration below 135 mmol/L, poses significant neurological risks, particularly when chronic – which is defined as lasting more than 48 hours. During chronic hyponatremia, the brain cells undergo adaptive changes, potentially masking symptoms while rendering the brain susceptible to damage upon abrupt correction, resulting in osmotic demyelination syndrome (ODS). The majority of ODS cases arise in patients experiencing serum sodium corrections exceeding 10 mmol/L within 24 hours or 18 mmol/L within 48 hours. At present, our health system has not established a standardized protocol for managing hyponatremia. Hence, this study aimed to assess the incidence of overcorrection within 24 and 48 hours among hyponatremic patients and to discern the treatment modality associated with the treatment modality associated with correction rates faster than recommended at 24 hours and at 48 hours correction rates.

METHODOLOGY: This was an IRB-exempt, retrospective, multi-site cohort study. Our primary objective was to describe the percentage of hyponatremic adult patients whose serum sodium is corrected at the rate of ≥10 mmol/L in 24 hours . Our secondary objectives were to describe the percentage of adult patients with hyponatremia whose serum sodium is corrected at the rate of greater than 18 mmol/L in 48 hours, and to describe percentage of patients whose serum sodium was corrected at the rate of ≥10 mmol/L in 24 hours when treated with each of the following: selective vasopressin V2 receptor agonists, isotonic saline, and hypertonic saline. Patients were eligible for inclusion if they were ≥18 years old admitted at our health system between January 1st, 2023 to August 30th, 2023, diagnosed and documented chronic hyponatremia (serum sodium less than 130 mmol/L within 12 hours of admission). Patients were excluded if they had documented cirrhosis, nephrotic syndrome or impaired renal function (recorded CrCl less than 30ml/min) corticosteroid deficiency, low salt intake, exercise-induced hyponatremia in the EPIC electronic medical record. Descriptive statistics were used to characterize all endpoints.

RESULTS: Among the 1,047 patients initially screened, 323 met the inclusion criteria for the study. Major exclusion criteria included patients without documented chronic hyponatremia 27.3%, and those with impaired renal function (CrCl less than30), 18.4%. The median age of these patients was 69 years old, with 57% of them being female. The primary outcome of the study revealed that 8.1% of patients experienced serum sodium correction at a rate of 10 mmol/L or more within 24 hours of treatment. None of the patients experienced serum sodium correction at a rate exceeding 18 mmol/L within 48 hours of treatment. Notably, all patients received normal saline. Regarding additional correction, 49% received 3% hypertonic saline, 22.3% received a selective vasopressin V2 receptor agonist ,and 6.5% received or urea to address their hyponatremia. Among those with overcorrected serum sodium, 58% were associated with the use of all three agents together, 23% were associated with the use of both isotonic and hypertonic saline,15% occurred with isotonic saline plus selective vasopressin V2 receptor agonists, and 4% with isotonic saline and urea.

CONCLUSIONS: Rapid coorrection of serum sodium occured in 8% of patients within 24 hours and the us of normal saline, 3% hypertonic saline, and selective vasopressin V2 receptor agonists within 24 hours was associated with most overcorrected serum sodium cases.

10:40am – 10:55am Y **Evaluating the Use of Olanzapine for Prevention of CINV for HEC Regimens** Athena A

Presenters: Zachary Powell

TITLE: Evaluating the Use of Olanzapine for Prevention of CINV for HEC Regimens

AUTHORS: Zachary Powell, Sonia Amin Thomas, Nagender Mankan

OBJECTIVE: The purpose of this study was to evaluate the efficacy of olanzapine for CINV due to HEC regimens

SELF ASSESSMENT QUESTION: Which of the following are the main receptors involved in chemotherapy-induced nausea and vomiting?

BACKGROUND: Pharmacological management of chemotherapy-induced nausea and vomiting (CINV) includes antagonizing serotonin, neurokinin, dopamine, and histamine receptors involved in the emetic response from the vomiting center. In addition to standard antiemetic triplet therapy with dexamethasone, neurokinin-1 receptor antagonists and setrons recommended by the National Comprehensive Cancer Network (NCCN) for highly emetic chemotherapy (HEC) regimens, olanzapine is an atypical antipsychotic that has seen increased utilization alongside triplet therapy due to its antagonistic effects of receptors involved in CINV. The purpose of this study is to evaluate the efficacy of olanzapine in reducing the severity and frequency of CINV episodes due to HEC regimens.

METHODOLOGY: This study was a multicenter, retrospective, electronic chart review of patients greater than or equal to 18 years of age with a cancer diagnosis and receiving HEC regimens defined by the NCCN Antiemetic Version 2.2023 Guidelines. Episodes of CINV were compared between patients who received traditional triplet therapy and olanzapine versus patients who received traditional triplet therapy alone at Northwest Georgia Oncology Centers WellStar between January 1, 2021, and January 1, 2023. Data collection was performed using the Slice-Dicer reporting tool in the electronic health record EPIC. A total of 94 patients were included in the study with 47 patients receiving triplet therapy plus olanzapine. Cycles with patient-reported episodes of CINV in the study group prior to the initiation of olanzapine were included in the control group to mitigate the potential underestimation of olanzapine’s efficacy in preventing CINV.

RESULTS: The use of olanzapine in combination with traditional antiemetic therapy illustrates a clinically significant reduction in CINV for patients receiving HEC regimens. During this study, patients receiving HEC and traditional antiemetic triplet therapy prior to the initiation of olanzapine (n=47) totaled 91 CINV events over the course of 120 cycles and patients receiving traditional triplet therapy alone (n=47) totaled 151 CINV events over 238 total cycles. The average number of CINV episodes without olanzapine was 2.57 per patient and 0.68 per cycle. Additionally, the amount of dose reductions implemented during cycles without olanzapine was 2.5 times greater when compared to cycles with olanzapine.

The addition of olanzapine to traditional antiemetic therapy in patients experiencing CINV due to HEC regimens demonstrates a significant reduction in reported events. Following the addition of olanzapine to triplet therapy, a total of 10 episodes of CINV were documented over the course of 159 total cycles: an average of 0.21 episodes per patient and 0.06 episodes per cycle. One adverse event was documented occurring in an individual who reported experiencing syncope; however, the patient did not experience CINV but wished to discontinue therapy.

CONCLUSIONS: Toxicities associated with chemotherapy present various challenges for clinicians; however, limiting the need for dose reductions due to CINV provides the opportunity to achieve recommended doses with evidence-based survival benefits. Comparing the averages of CINV between groups with and without olanzapine at NGOC infusion centers provides additional real-word evidence supporting the efficacy of olanzapine for CINV treatment and prevention. Limitations associated with this study include the retrospective nature of a chart-review study. Further, severity of nausea and vomiting is subjective to individual patients and may not account for

confounding variables in an outpatient setting.

The potential stigma associated with olanzapine's classification as an "antipsychotic" may also dissuade patients from taking the medication. Such concerns illuminate the value a pharmacist can offer by providing patient education and clarifying the risks, benefits, and mechanisms of chemotherapy and supportive medications. Additionally, pharmacists may offer cost-saving strategies such as drug coupons to mitigate the financial burden associated with antiemetics patients are advised to pick up from a retail pharmacy.

10:40am – 10:55am P **Evaluation of Opiate Usage for Acute Non-surgical Pain** Athena I

Presenters: David Sharogradsky

TITLE: Evaluation of Opiate Usage for Acute Non-surgical Pain

AUTHORS: David Sharogradsky, Joe Rambo, Elizabeth Oglesby, Charles DuRant, Cherie Abernathy

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: To identify opportunities to improve acute pain treatment through multi-modal analgesic approaches by describing opioid utilization in an inpatient setting, characterizing opioid vs. non-opioid utilization, and describing quantities of opioids provided on discharge prescriptions. The objective is to identify daily and total opioid consumption amongst groups receiving multi-modal pain treatment compared to groups which receive only opioids with the assumption that multi-modal groups will receive lesser morphine equivalents (MME). Such observations may advocate for the necessity of introducing an opioid stewardship program to improve allocation of pain medications.

METHODOLOGY: A retrospective chart review of inpatient non-surgical adults admitted to a large inpatient institution with opioid orders. Collection of availability and utilization of non-opioids, MMEs received, pain score documentation, and pain prescriptions prescribed at discharge. Exclusion criteria included post-operative pain, sickle cell disease, cancer pain, and chronic pain. Study variables included demographics (age and sex), length of stay, medical history and pain diagnosis, opioid use (drug, dose, formulation), concurrent non-opioid medication use, documented pain score assessments, and discharge prescription data (opioid prescription). An ad-hoc power analysis determined 224 patients were required to meet 90% power to detect a 30% difference between cohorts. Data was randomly collected from 240 patients divided evenly into opioid only (O) and multi-modal (M) groups over a six-month period from January to June of 2023. From the acquired data, MMEs were calculated and compared to identify significant differences in daily opioid consumption. Secondary comparative analyses were performed to assess total MME consumption and subgroup analyses of daily and total MME consumption amongst male, female, elderly (greater than or equal to 65), and younger (less than 65) cohorts. Data was analyzed using one-tailed Wilcoxon-Signed-Rank, Mann-Whitney U, and Pearson Chi-squared tests to detect significant differences in daily and total MMEs defined as p less than or equal to 0.05.

RESULTS: The average age of the study population is 60.49 years which received a cumulative average MME of 105.65 (5-1963.5) over an average length of stay of 9.53 days equaling an average daily MME of 18.22 (0.11-585). Pain score assessments were not collected due to inconsistent and inaccurate recordings. Analysis of daily MME identified greater opioid consumption trends amongst all O cohorts, however, the dosing differences were deemed insignificant (p=0.28) with similar trends amongst all subgroups. Incidentally, the O cohort’s total MME was lesser than the M group’s (94.33 (5-1520) vs. 116.96 (5-1963.5)) identified as a significantly observed difference (p=0.02). Although the subgroups were not powered, significant differences in total MMEs were observed in the male (p=0.01) and less than 65 (p=0.02) cohorts. There were no significant differences in total MMEs observed in the female and elderly cohorts. Discharge pain prescription orders were analyzed for 139 patients to identify preferences for either opioid or non-opioid pain medications. Analysis of results revealed no preference (p=0.65) for converting patients to either an opioid or non-opioid pain regimen upon discharge.

CONCLUSIONS: Based on the analysis, a greater daily MME was observed for the O cohorts compared to the M groups which supports the original hypothesis that multi-modal analgesic dosing would be result in fewer daily MMEs than an opioid only regimen. The results of this study provide an opportunity for the creation of an opioid stewardship program to improve utilization of opioid and multi-modal analgesics in an acute care setting to maintain low daily opioid consumption, taper opioid throughout an inpatient stay, and promote conversion to non-opioid multi-modal regimens upon discharge.

11:00am – 11:15am

Comparison of the rate of GI-related hospitalizations associated with the use of various glucagon like peptide-1 receptor agonists (GLP-1 RAs)

Athena H

Presenters: Ahmed Abdulrahman

Purpose: Type 2 diabetes mellitus results from a combination of factors including insulin resistance, pancreatic beta-cell dysfunction, and inappropriate glucagon secretion. Glucagon like peptide-1 receptor agonists (GLP-1RAs) have emerged as integral components of the type 2 diabetes mellitus guidelines. This highlights the importance of pharmacists and healthcare providers to have a comprehensive understanding of the safety of these medications. While understanding the prevalence of gastrointestinal (GI) side-effects related to GLP-1RAs is important, equally pivotal is evaluating the severity of these adverse reactions and their potential impact on hospitalizations.

Methods: This multicenter, retrospective study received approval from the Institutional Review Board at St. Joseph's/Candler Heath System. A chart review approach was employed with subjects identified through a health-system software using predefined inclusion and exclusion criteria. Inclusion criteria encompassed adult patients with type 2 diabetes and confirmed home use of GLP-1 admitted to St. Joseph's/Candler health system from November 1st 2022 to November 1st 2023. Exclusion criteria encompassed patients with unconfirmed home medications. Demographics and clinical data including sex, height, weight, other concurrent diabetes medications, and BMI were collected. The primary outcome assess was the admitting diagnosis of a GI complaint, with secondary outcomes focusing on the specific GI-related admitting diagnosis. Logistic regression was used as a statistical test to compute the result.

Results: 494 subjects were screened (256 females (52%), 238 males (48%)), with confirmed home GLP-1. Subjects age was between 36-92 years old with a mean of weight 222.14 lbs. 49 (9.9%) patients experienced a GI-related issue like (nausea, vomiting, abdominal pain, gastroparesis. etc.) necessitating hospitalization while on confirmed GLP-1 therapy, (90%) did not experience any GI related side effects. 268 (54.2%) were patients on semaglutide SubQ, 54 (10.9%) were patients on semaglutide PO, 138 (27.9 %) on dulaglutide, 26 (5.2%) on liraglutide and 8 (1.6%) patients on exenatide. There was no statistically significant age difference between male and female groups. Due to the limitation in the sample size we only compared the samples of semaglutide SubQ and dulaglutide using Odds Ratio (OR) test which showed dulaglutide caused more GI symptoms comparing to semaglutide SubQ, but the result was not statistically significant, odds ratio: 0.72 (95% CI 0.38-1.36). Logistic Regression was tested against GI symptoms. Both weight and age showed significant effect on GI symptoms. Lighter weight and younger patients were more prone to develop GI symptoms comparing to their heavier weight and older participants. The type of GLP-1, Sex, BMI did not have statistically significant effect on GI symptoms.

Conclusions: GLP-1/GLP-1-GIPRAs are widely use in the treatment of diabetes and obesity, exhibiting favorable characteristics such as improved weight loss, minimal risk of hypoglycemia, and reduction in glycated hemoglobin (HgA1C). However, their GI-related side effects pose challenges for some patients, necessitating hospitalization to address these issues. This study emphasizes the importance of evaluating the rate of GI-related hospitalizations associated with GLP-1 in patients with type 2 diabetes, comparing the incidence above different agents, and assisting pharmacists and healthcare providers in making informed decisions regarding medication selection.

11:00am – 11:15am C **Impact of transitioning from continuous infusion furosemide to bumetanide in patients with ADHF** Parthenon 2

Presenters: John Shannon

TITLE: Impact of transitioning from continuous infusion furosemide to bumetanide in patients with ADHF

AUTHORS: John Shannon, Tonya Derrick, Brooke Bibb

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Heart failure affects nearly 6 million people in the United States, and development of congestion leading to acute heart failure decompensation predicts poor patient outcomes.1 Loop diuretic response varies among patients which can lead to inadequate treatment. At Ascension Saint Thomas Hospital West (ASTHW), bumetanide infusions are often utilized for patients who fail to achieve adequate diuresis from continuous infusion furosemide. There is minimal data comparing the efficacy of these two loop diuretics when utilized as a continuous infusion. The objective of this study was to compare hourly urine output in acute decompensated heart failure (ADHF) patients when transitioning from continuous infusion furosemide to continuous infusion bumetanide.

METHODOLOGY: This was a single-center retrospective chart review of patients admitted to ASTHW with ADHF who transitioned from continuous infusion furosemide to continuous infusion bumetanide between January 1, 2019 and June 30, 2023. Patients were included if they were greater than 18 years of age, had an ADHF diagnosis, received greater than 12 hours of continuous infusion furosemide before transitioning to bumetanide, received greater than 6 hours of continuous infusion bumetanide, and had charted urine output data. Patients who received renal replacement therapy, had an allergy to study drugs, were a heart transplant recipient, or had greater than 24 hours between the furosemide to bumetanide transition were excluded. The primary outcome was to compare hourly urine output when transitioning from continuous infusion furosemide to continuous infusion bumetanide. Secondary objectives included hourly urine output compared in furosemide equivalence and incidence of acute kidney injury and electrolyte abnormalities. A 20:1 furosemide to bumetanide conversion was used to determine if the cumulative diuretic dose was increased or decreased when the transition was made.

RESULTS: Thirty patients were included in the study. Urine output was increased when transitioning from a continuous infusion furosemide to continuous infusion bumetanide (108 mL/hour versus 153 mL/hour, p=0.005). When comparing in terms of furosemide equivalence, most patients (n=18) received a higher diuretic dose when transitioning from furosemide to bumetanide, and urine output increased significantly (107 mL/hr versus 148 mL/hr, p=0.027). Urine output also increased in the patients (n=12) who received a lower diuretic dose, although it did not reach statistical significance (118 mL/hr for furosemide versus 161 mL/hr for bumetanide, p=0.108). The incidence of acute kidney injury and electrolyte abnormalities were similar between groups.

CONCLUSIONS: In our patient population, the transition from continuous infusion furosemide to continuous infusion bumetanide improved urine output. Further studies are needed to determine the diuretic response at equipotent doses.

11:00am – 11:15am A **Assessment of a Medication Reconciliation Program** Athena J

Presenters: Lindsay Brooks

TITLE: Assessment of a Medication Reconciliation Program

AUTHORS: Lindsay Brooks, Meredith Burns, Matt McAllister

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Medication reconciliation is the formal process of validating a patient's current medication list and ensuring consistency of those medications in the patient record or medication orders. The responsibility of obtaining a current list is often bestowed upon nurses. However, patient acuity, high patient census, and time constraints may limit their ability to retrieve the most accurate information. In general, there is no standardization of the process for medication reconciliation, which results in variations in the historical information gathered, comprehensiveness of medication orders, and what information is communicated to providers across the continuum of care. The American Society of Health-System Pharmacists recommends direct pharmacist involvement in the development and management of medication reconciliation systems to improve the quality of medication reconciliations. Piedmont Columbus Regional Midtown (PCRM) recently implemented a pharmacy-led medication history team in the Emergency Department. The purpose of this study was to assess the impact of a pharmacy-led medication history team on the accuracy of medication reconciliations.

METHODOLOGY: This was an IRB-exempt, prospective quality improvement initiative of patients admitted to PCRM between October 1st, 2023 – March 1st, 2024. Upon admission, patients' home medication lists were updated by either bedside nursing or the pharmacy-led medication history team. After the home medication lists were updated, patients' medication lists were then evaluated for accuracy by comparison to a gold standard list compiled by the primary investigator. The primary outcome was to identify the percentage of medication lists that were at least 90% accurate when compared to the gold standard for bedside nursing compared with the pharmacy-led medication history team. Secondary outcomes were to determine average number of medication errors per medication reconciliation and identify medication classes frequently involved in medication list errors. A cost-savings analysis was performed to assess the financial impact of the medication history team.

RESULTS: TBD

CONCLUSIONS: TBD

11:00am – 11:15am ' **Development of a Productivity Model at a Pharmacy Consolidated Service Center** Athena I

Presenters: Amelia Hornaday

TITLE: Development of a Productivity Model at a Pharmacy Consolidated Service Center

AUTHORS: Amelia Hornaday, Harrison Jozefczyk, Philipp Monterroyo, Lindsay Reulbach, Catherine Bishop

OBJECTIVE: To develop a productivity model with validation by comparison to past time periods to represent work at a Pharmacy Consolidated Service Center.

SELF ASSESSMENT QUESTION: In what pharmacy setting has the development and utility of a productivity model not been assessed?

BACKGROUND: Productivity is defined as the ratio of work output to labor input and is used to measure the effectiveness of staffing compared to the volume of work. Productivity is necessary for both internal and external benchmarking as an objective measurement for self-comparison and comparison to other organizations over time. Given the lack of standard metrics, internal benchmarking historically has been preferred for its potential to be validated. Identifying the appropriate metrics to assess productivity remains a challenge for health-system pharmacy departments which has complicated the ability to quantify true value to an organization. Several institutions have demonstrated improved labor outcomes in health-system pharmacy with the use of novel productivity models, contributing to the lack of available evidence. Most of the existing articles are representative of inpatient and ambulatory care settings. The utility of a model at a pharmacy consolidated service center has not been assessed.

METHODOLOGY: The amount of time needed to do work was determined by assessing the total number of tasks, time needed to complete each task, and total number of fixed tasks. Workload drivers were defined, all fixed and variable activities were determined, categories for determining time standards were established, and time studies were performed for each variable activity. Time standards for each category were summed to determine the specific relative value unit (RVU). Total biweekly orders were multiplied by the respective RVU to determine the unit of service (UOS). The UOS will be combined with the fixed activities and compared to total work hours during the biweekly period. A modified Delphi process consisting of pharmacy administrators and experienced pharmacists was used to validate the selection of drivers and activities and to ensure appropriate perception of workload.

RESULTS: In progress

CONCLUSIONS: In progress

11:00am – 11:15am M **Prescribing practices of the four pillars of HFrEF therapy in an integrated healthcare system** Athena G

Presenters: Annie Yeung

TITLE: Prescribing practices of the four pillars of HFrEF therapy in an integrated healthcare system

AUTHORS: Annie Yeung, Carla Knowles, Naomi Yates, Robert Neuman

OBJECTIVE: Identify the four pillars in HFrEF therapy

SELF ASSESSMENT QUESTION: Which of the following medications is considered one of the four pillars in HFrEF therapy?

BACKGROUND: Heart failure with reduced ejection fraction (HFrEF) is defined as heart failure with left ventricular ejection fraction (LVEF) less than 40%. The 2022 American College of Cardiology (ACC)/American Heart Association (AHA)/Heart Failure Society of America (HFSA) guidelines included four pharmacological classes as class 1A recommendations for the management of HFrEF. These classes are referred to as the four pillars and include: angiotensin receptor-neprilysin inhibitors (ARNI); beta blockers; mineralocorticoid receptor antagonists (MRA); and sodium-glucose cotransporter-2 inhibitors (SGLT2I). When use of an angiotensin receptor-neprilysin inhibitor is not feasible, the guidelines have a class 1A recommendation to use either an angiotensin-converting enzyme inhibitor (ACE) or angiotensin receptor blocker (ARB) as an alternative. The purpose of this study was to evaluate use of the four pillars in patients with HFrEF within an integrated healthcare system. It additionally compared patients enrolled in a multidisciplinary heart failure program, a clinical pharmacist and nurse-driven program for heart failure patients, with patients managed by the usual standard of care.

METHODOLOGY: This was a retrospective, IRB-approved, cohort study of patients who had established care with Kaiser Permanente Georgia and completed an echocardiogram between July 1, 2021 and May 31, 2023, with resultant LVEF less than 40%. Patients were excluded from this study if they were under 18 years of age, had a known allergy or hypersensitivity to any of the four pharmacological pillars, history of hypotension, significant renal dysfunction, hyperkalemia, pregnant, or enrolled in hospice care. The study population was divided into 2 cohorts– patients enrolled in the multidisciplinary program and those managed by the usual standard of care. The primary outcome was to determine the percentage of patients with HFrEF who were treated with the four pillars of guideline-directed medical therapy (GDMT). Additionally, data was extracted to determine any differences in prescribing patterns between the 2 cohorts of the study population. Collected data was analyzed using descriptive statistics.

RESULTS: A total of 358 patients were included as the final study population for data analysis. The number of patients prescribed the following medications included: 143 patients (39.9%) with ACE/ARB, 191 patients (53.4%) with ARNI, 326 patients (91.1%) with beta blocker, 151 patients (42.2%) with SGLT2I, and 199 patients (55.6%) with MRA. Of the 358 patients, 110 patients (30.7%) were prescribed the four pillars of GDMT, 111 patients (32%) were prescribed three pillars, 105 patients (29.3%) were prescribed two pillars, 27 patients (7.5%) were prescribed 1 pillar, and 5 patients (1.4%) were not prescribed with any of the pillars. There were 165 patients (46%) enrolled in the multidisciplinary program, while 193 patients (54%) had HFrEF therapy managed by the usual standard of care. Between the two cohorts, 66 patients (40%) in the multidisciplinary program cohort were treated with the four pillars of GDMT compared to 44 patients (22.8%) in the standard of care cohort.

CONCLUSIONS: Within an integrated healthcare system, one-third of the study population were prescribed all four pillars for the management of HFrEF. In patients that were not prescribed all four pillars, more patients were not prescribed a SGLT2I and/or MRA compared to the other pillars. Patients were more likely to be on all four pillars if they were under the age of 65, currently receiving financial assistance, or if they did not have chronic kidney disease. Overall, a larger percentage of patients in the multidisciplinary program were prescribed the four pillars of GDMT when compared with patients whose HFrEF therapy was managed by the usual standard of

care. Further analysis is needed to determine the impact of the multidisciplinary program related to patient outcomes.

11:00am – 11:15am R **Evaluating pharmacy student perceptions prior to and post-modification of a sepsis concept map tool** Olympia 1

Presenters: Sara Niazi

TITLE: Evaluating pharmacy student perceptions prior to and post-modification of a sepsis concept map tool
AUTHORS: Sara Niazi, PharmD; Russ Palmer, PhD; Trisha Branan, PharmD; W. Anthony Hawkins, PharmD
OBJECTIVE:
SELF ASSESSMENT QUESTION:
BACKGROUND: In pharmacy education, innovations are necessary to support students' development of robust conceptual understanding of disease management to provide a foundation for effective clinical problem-solving. Recent research highlights the utility of constructing concept maps to improve understanding of complex concepts and associated problems; however, the implications for their design optimization are currently unknown. This study aims to facilitate pharmacy student understanding of sepsis through first modifying a digital sepsis concept-mapping tool based on data analysis of student perceptions and usability of the tool using validated survey instruments.
METHODOLOGY: This is a retrospective evaluation of a multi-campus, single institution PharmD program in the context of a backbone course focused on pharmacotherapy in Fall 2022 and Fall 2023. A digital concept mapping tool was introduced to a pharmacotherapy course in Fall 2022. Following, a voluntary survey was designed combining two previously validated 5-point Likert scales, the web-based learning tools scale (WBLTs) and the system usability scale (SUS), and an open-ended questionnaire and delivered through a software program to assess student perceptions and usability of the concept mapping tool. These de-identified student survey results were then analyzed quantitatively through descriptive statistics using a two-sample t-test and qualitatively through thematic analysis via a two-cycle inductive coding process and result triangulation to make modifications to the digital concept mapping tool. This modified digital concept mapping tool was then introduced to the pharmacotherapy course and the voluntary survey was implemented again in Fall 2023.
RESULTS: TBD.
CONCLUSIONS: TBD.

11:00am – 11:15am R **Evaluation of short-term functional outcomes with propranolol in severe traumatic brain injury** Olympia 2

Presenters: Katelyn Carswell

TITLE: Evaluation of short-term functional outcomes with propranolol in severe traumatic brain injury

AUTHORS: Katelyn Carswell, Sarah Frye, Martin Gordon, Caleb Mentzer, Karen Bryson

OBJECTIVE:Identify the role of early initiation of propranolol in patients with a severe traumatic brain injury and its effects on short-term functional outcomes

SELF ASSESSMENT QUESTION: (True or False) Based on this study, propranolol initiated within 7 days of hospitalization improved short-term functional outcome.

BACKGROUND: Intracranial injuries can result from a primary and a secondary insult. The primary injury occurs at the time of trauma and can only be addressed through preventative measures. Conversely, secondary injury, arises from complications of the primary injury and may involve disruptions in cerebral blood flow resulting in issues such as ischemia, hypoxia, and cerebral edema. These factors contribute to increased intracranial pressure, activation of the sympathetic nervous system, and a catecholamine response. Elevated levels of catecholamines have been identified as markers of functional outcomes and mortality in a traumatic brain injury (TBI). It is hypothesized that beta blockers might mitigate the actions of catecholamines post-TBI, potentially slowing or reducing the progression of secondary injury. Recent studies favor the use of propranolol following a TBI for improved long-term functional outcomes and reduced mortality. However, evidence regarding short-term benefits remains limited. The purpose of this study is to evaluate the short-term functional outcomes in patients with a severe TBI on propranolol within 7 days of admission compared to those who do not receive propranolol during hospitalization.

METHODOLOGY: This is a single-center, retrospective cohort study comparing the short-term functional outcomes in hospitalized patients with propranolol versus no propranolol after a severe TBI. Patients 18 years or older who had a diagnosis of a TBI and a Glasgow Coma Score of less than or equal to 8 on admission in a two-year period were eligible for enrollment. Those excluded had a prior TBI, spinal cord injury, beta blocker use prior to admission, death within 48 hours of admission, or an allergy to propranolol. The primary outcome was functional status on discharge. The secondary outcomes were hospital length of stay, intensive care unit (ICU) length of stay, in-hospital mortality, diagnosis of pneumonia, days requiring mechanical ventilation, and incidence of agitation.

RESULTS: Among the 118 patients initially reviewed, 42 individuals were excluded for various reasons. Of the 76 patients included, 11 were assigned to the propranolol group and 65 to the group who did not receive propranolol during hospitalization. The primary outcome, functional status based on conditions at discharge, for the intervention group versus control group during hospitalization, were stable (0% vs 10.8%), previous level of function (0% vs 1.5%), temporary disability (9.1% vs 12.3%), moderate disability (0% vs 27.7%), severe disability (27.3% vs 10.8%), and deceased (63.6% vs 36.9%). The results for the propranolol group versus no propranolol during hospitalization for the secondary outcomes of hospital length of stay (11.02 days vs 13.06 days, $p=0.92$), ICU length of stay (9.60 days vs 7.24 days, $p=0.42$), in-hospital mortality (63.6% vs 35.4%, $p=0.10$), occurrence of pneumonia (9.1% vs 35.4%, $p=0.16$), days requiring mechanical ventilation (10.26 days vs 5.36 days, $p=0.08$), and incidence of agitation (1 day vs 0 days, $p<0.0001$) were also calculated.

CONCLUSIONS: When examining the early administration of propranolol for short-term functional outcomes in post-TBI patients, there was no benefit seen in short-term functional outcome when comparing to no propranolol during hospitalization. It is important to note that this trial was underpowered due to limited patient enrollment, primarily attributable to the lack of eligible participants in the propranolol group. While no difference in short functional outcomes were observed from this study, there is still data to support propranolol use in reduction of mortality and benefits with long-term functional outcomes.

11:00am – 11:15am R **Intubation Rates in Acutely Agitated Patients in the Emergency Department** Parthenon 1

Presenters: Olivia Zanolli

TITLE: Intubation Rates in Acutely Agitated Patients in the Emergency Department

AUTHORS: Olivia Zanolli, Melissa Padgett, Lisa Scott

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The prevalence of agitation among patients in the emergency department (ED) is an estimated 1.7 million events annually in the United States. Acute management of agitation in the ED involves both verbal and non-verbal de-escalation techniques and if necessary, chemical sedation. For patients requiring chemical sedation, it is recommended to treat with a rapid acting first generation antipsychotic alone, a rapid acting benzodiazepine alone, or a combination of both. These medications have various degrees of sedating effects, and excessive sedation may result in intubation. This study aims to determine which agents, dose and dosing intervals result in the highest intubation rates among patients who are acutely agitated in the ED. The primary outcome of this study was the incidence of intubation. Secondary outcomes included the number of doses administered in 60 minutes and the time from first to last dose of acute agitation treatment.

METHODOLOGY: This was a single center, retrospective cohort study conducted at a 515-bed academic hospital from March 2023 to August 2023. Patients were included if they received at least one dose of the following drugs in the ED: haloperidol, midazolam, droperidol, ziprasidone, olanzapine, or ketamine. Patients were excluded if they had nausea and/or vomiting or seizures. A study-specific chemical sedation score was created to quantify therapeutic equivalence. Patients were divided into 2 cohorts according to their score, and the incidence of intubation was compared between the two groups.

RESULTS: In total, 279 patients were included in the study, with 195 in cohort 1 and 77 in cohort 2. No significant differences were noted between each cohort in terms of intubation rates (3.6% in cohort 1 versus 7.8% in cohort 2, $p=0.1433$). However, more doses were administered in 60 minutes in cohort 2 (73% of patients received at least two doses) versus cohort 1 (35% of patients) and this was statistically significant ($p<0.0001$). Additionally, the time from first to last dose of acute agitation treatment was slightly longer in cohort 2 (3.5 hours in cohort 1 vs. 5.1 hours in cohort 2, $p=0.1123$).

CONCLUSIONS: This study did not detect a difference in intubation rates in acutely agitated patients in the ED who received different doses and dosing intervals of study drug(s). Since this study suggests that intubation rates were low and not due to over sedation, intubation may be based on patient-specific factors that were not examined in this study.

11:00am – 11:15am F **Effect of Pharmacist-Driven MRSA Nasal Screening for De-escalation of Anti-MRSA Therapy** Athena D

Presenters: TiShay Perry

TITLE: Effect of Pharmacist-Driven MRSA Nasal Screening for De-escalation of Anti-MRSA Therapy

AUTHORS: TiShay Perry, Darien Campbell, Suzanne Avant, Lauren Floris

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Anti-Methicillin-Resistant Staphylococcus Aureus (MRSA) therapy for pneumonia is frequently used despite the low prevalence of MRSA community-acquired and healthcare-related pneumonia. Additionally, since the publication of the healthcare-associated pneumonia guidelines in 2005, there has been an increase in vancomycin usage for pneumonia, which has not led to improved outcomes. Recent data has shown that a MRSA nasal swab is an appropriate tool to guide empiric antimicrobial de-escalation in pneumonia as MRSA nasal swabs have a high negative predictive value for respiratory cultures. We aim to determine the impact of pharmacist-driven 'MRSA Nasal Screening for De-escalation' in pneumonia at a single center site.

METHODOLOGY: For this retrospective chart review before-after cohort study, authors evaluated patient's electronic medical record from September 1, 2021 to December 31, 2021 (pre-protocol cohort) and March 1, 2022 to June 30, 2022 (post-protocol cohort). Adults aged 18 years or older admitted to Atrium Health Navicent with vancomycin ordered for a "Pulmonary" indication were included in the study. The primary outcome was Vancomycin Days of Therapy (DOT) per 1,000 patient days between the pre-protocol cohort and post-protocol cohort. Secondary outcomes included the total direct drug cost of vancomycin therapy per patient encounter, the presence of acute kidney injury (AKI), and interventions to de-escalate vancomycin therapy.

RESULTS: Chart-level data was collected for 448 patients with vancomycin ordered for a "Pulmonary" indication at Atrium Health Navicent. The demographics between the pre-protocol and the post-protocol was similar with an average age of 65 years old and the male population being 52% and 60% respectively. Similarly, in the pre-protocol cohort 32% of patients had an indication of community-acquired pneumonia and 68% had an indication of health-care related pneumonia compared to 45% and 55% in the post-protocol cohort. The DOT per 1,000 patient days was 20.4 days in the pre-protocol cohort compared to 15.1 days in the post-protocol cohort, a difference of –5.3 days of therapy per 1,000 patient days (p-value = 0.5).

CONCLUSIONS: Our data shows DOT per 1000 patient days was not statistically significant between pre-protocol vs post-protocol cohorts when implementing a pharmacist-driven MRSA nasal screening for de-escalation of anti-MRSA therapy in patients with a pulmonary indication.

11:00am – 11:15am F **Fluoroquinolone Pharmacokinetics in the Treatment of Cystitis Caused by Resistant Pathogens** Athena C

Presenters: Hannah Holbert

TITLE: Fluoroquinolone Pharmacokinetics in the Treatment of Cystitis Caused by Resistant Pathogens
AUTHORS: Hannah Holbert, Samantha Walker, Thaddeus McGiness, Landon Johnson, Brandon Hawkins
OBJECTIVE: Determine pharmacokinetic considerations in patients with cystitis caused by resistant pathogens
SELF ASSESSMENT QUESTION: Which pharmacokinetic considerations impact cystitis treatment success with fluoroquinolones?
BACKGROUND: An emphasis on the pharmacokinetics of antimicrobials is emerging as a proposed mechanism to overwhelm mechanisms of resistance.

Treatment of urinary tract infections is dependent upon the presence of urinary symptoms.

Fluoroquinolones (FQs) achieve significant urinary concentrations well above the minimum inhibitory concentrations (MIC) considered to be resistant for Enterobacterales and Pseudomonas aeruginosa.
METHODOLOGY: This is a retrospective cohort study that was conducted at the University of Tennessee Medical Center. Adult patients admitted between January 1st, 2014, and December 31st, 2020, were screened for inclusion. Patients eligible for inclusion were those with a positive urine culture with Enterobacterales or Pseudomonas aeruginosa and a diagnosis of cystitis treated with levofloxacin or ciprofloxacin as empiric therapy prior to susceptibility results. Enrolled patients were grouped based on the susceptibility of the isolated pathogen to fluoroquinolones. The control group included susceptible isolates and the study group included non-susceptible isolates (i.e., intermediate or resistant) where breakpoints are based on the 2018 CLSI standards. In the context of this study, non-susceptible is defined as a ciprofloxacin MIC ≥ 2 mg/L or a levofloxacin MIC ≥ 4 mg/L.
RESULTS: There was no statistical difference in clinical outcomes between the susceptible and resistant groups. 16% of patients with resistant pathogens resulted in clinical failure. 5% of patients with susceptible pathogens did not achieve clinical success. Escherichia coli was the most common urinary pathogen isolated in both the susceptible and resistant groups. 48.7% of patients who achieved clinical success grew a urinary pathogen with a documented MIC ≥ 4.

CONCLUSIONS: Urine concentration of fluoroquinolones may overcome resistant pathogens in the treatment of cystitis.

11:00am – 11:15am T **Causes of severe hyperglycemic events in non-critically ill hospitalized patients** Athena B

Presenters: Lindsey Miller

TITLE: Causes of severe hyperglycemic events in non-critically ill hospitalized patients
AUTHORS: Lindsey Miller, Maggie Green, Maura Hall
OBJECTIVE: In progress
SELF ASSESSMENT QUESTION: In progress
BACKGROUND: Hyperglycemia is common among hospitalized patients. Severe hyperglycemia, a blood glucose level greater than 300 mg/dL, is associated with an increased risk of infection and mortality. Since inpatient hyperglycemia is largely avoidable with proper glycemic management, rates of severe hyperglycemic events can be considered an indicator for quality of hospital care. These varying rates across numerous health systems suggests the opportunity for improvement in glycemic management. While the use of evidence-based standardized protocols and insulin management protocols improve glycemic control and safety, we aim to first identify the causes of severe hyperglycemic events in non-critically ill hospitalized patients.
METHODOLOGY: This study is a single-center, retrospective, cross-sectional study at John D. Archbold Memorial Hospital. The study was conducted over a 6-month period, between February 1, 2023 and July 31, 2023. Patients included were greater than 18 years of age and had at least two blood glucose levels greater than 300 mg/dL after 48-hours of admission. If a patient had multiple admissions, the first admission within the evaluated time period was chosen to eliminate use of same patient on multiple occasions to reduce bias in the findings. Patients were excluded if they were in a critical care area, including the intensive care unit (ICU), intermediate care unit (IMCU), and emergency department (ED), required an insulin drip at any point during their hospital stay, were on an insulin pump while inpatient, or were pregnant.

Data collected included age, weight, height, BMI, comorbidities, A1c, home antihyperglycemic medications (class), inpatient medications impacting hyperglycemia, categorized reason for hospital admission and discharge, and diabetic diet order during inpatient stay. Diet order was reported as unknown if the patient was tolerating an oral diet, but the diet type was not documented. Blood glucose data was recorded as point of care (POC) or metabolic panel (MP).
RESULTS: A total of 532 patients with severe hyperglycemic episodes admitted to general medical units during the time period February 2023 to July 2023 were reviewed. After applying the exclusion criteria, 54 patients were included in the study.

The median age upon admission was 57 years (IQR 49-67 years). There were more females than males (63% and 37%, respectively). The median BMI was 30.8 kg/m2 (IQR 26.9-34.9 kg/m2), with 42 patients (77.78%) considered overweight or obese. The most common comorbidities among patients included hypertension (88.89%), type II diabetes (85.19%), and hyperlipidemia (59.26%). Before admission, 47 patients (87.04%) were receiving antihyperglycemic medications, with 20 patients (37.01%) receiving two or more antihyperglycemic mediation. The most common home antihyperglycemic medications among patients included insulin therapy (70.37%), metformin (20.37%), sodium-glucose cotransporter-2 (SGLT-2) inhibitors (20.37%), and sulfonylureas (20.37%). Of the 36 patients having an A1c level within the last 3 months of admission, the median A1c was 10.6% (IQR 8.5-12.0%).

The most common reasons for admission and primary discharge diagnoses were cardiovascular (20.37%), neurologic (14.81%), and endocrine (14.81%). While admitted, 31 patients (57.41%) received a beta-blocker, 15 patients (27.78%) received a steroid, and 8 patients (14.81%) received dextrose, all of which may impact

hyperglycemia. A diabetic diet order was ordered for 22 patients (40.74%).
CONCLUSIONS: Cardiovascular disease is the leading cause of death in patients with diabetes. In addition, patients with diabetes are two times more likely to have heart disease or a stroke than a patient without diabetes. A reduction in diabetes complications can be further enhanced by glycemic management, blood pressure management, cholesterol management, lifestyle modifications, and diabetes education. Modifiable factors that may have impacted inpatient severe hyperglycemic events include medications, such as steroids and dextrose, and a non-diabetic diet. Further research will aid in proper glycemic management and improve quality of hospital care.

11:00am – 11:15am Y **Effectiveness of a Chemotherapy Order-Set on Reducing Pharmacy Interventions Associated with Ordering Supportive Medications**
Presenters: Devin Tully Athena A
TITLE: Effects of Chemo Order-Set on Provider Workflow & Reducing Errors Associated w/ Ordering Regimens
AUTHORS: Devin Tully, Barbara Gleaton
OBJECTIVE:Identify the effects of a standardized order set on appropriate prescribing of supplemental chemotherapy medications.
SELF ASSESSMENT QUESTION:Does implementing a standardized order-set reduce the quantity of interventions associated with ordering of supplemental chemotherapy medications?
BACKGROUND: This is a quality improvement study at BVAHCS. Current practice allows orders for chemotherapy regimens to be added to consults as free text. There are situations where orders for hydration, antiemetics, and other supportive medication are incorrect or absent. This can affect appropriateness of care and increase the risk of patient harm. Interventions by pharmacy and follow-up with physicians requires time and effort that reduce workflow efficiency. This project will review errors before and after the implementation of a standardized order-set to see if errors are reduced with a new protocol.
METHODOLOGY: A retrospective chart review will be performed on patients prescribed chemotherapy medications impacted by a new order-set in which orders were entered from July to September of 2023. Data collected includes the chemotherapy agent, presence of hydration, antiemetic, and supportive medication orders, quantity and type of errors submitted with the original consult, if the provider entered the original order correctly, and if errors from the original order were duplicated when orders were renewed. The new order-set has been approved, and data will be collected for three months following implementation based on the same criteria and questions for pre-implementation data.
RESULTS: In progress.
CONCLUSIONS: Reduction of interventions is expected following the new order set implementation based on its utilization as a standardized method of ordering.

11:20am – 11:35am C **EVALUATION OF MEDICATION PRESCRIBING BEFORE AND AFTER A POST-PCI PHARMACIST CONSULT WORKFLOW** Parthenon 2

Presenters: Amanda Herndon

TITLE: EVALUATION OF MEDICATION PRESCRIBING BEFORE AND AFTER A POST-PCI PHARMACIST CONSULT WORKFLOW

AUTHORS: Amanda Herndon, PharmD, Brianna Qualls, PharmD, Christine Wong, PharmD

OBJECTIVE: To evaluate the effect of a post-PCI pharmacist driven consult workflow at AdventHealth Redmond.

SELF ASSESSMENT QUESTION:

BACKGROUND: The American College of Cardiology, American Heart Association, and Society for Cardiovascular Angiography and Interventions (ACC/AHA/SCAI) 2021 clinical practice guidelines for post-PCI medication management recommend the use of an aspirin, high intensity HMG-CoA reductase inhibitor (statin), and P2Y12 inhibitor. When ejection fraction is less than 40%, an angiotensin converting enzyme inhibitor (ACEI), angiotensin II receptor blocker (ARB), or angiotensin receptor neprilysin inhibitor (ARNI) is recommended. In patients who have suffered acute coronary syndrome (ACS), a beta blocker may be indicated. AdventHealth Redmond reports post-PCI medication adherence to the National Cardiovascular Data Registry (NCDR). Results are compiled quarterly and released to the public as a four-star rating scale. In 2022, AdventHealth Redmond received a score of 3 out of 4 stars for the following metrics: patients who are prescribed any intensity statin and patients who are prescribed all required medications (aspirin, any intensity statin, and P2Y12I). Additionally, due to the morbidity and mortality benefits associated with post-PCI medication adherence and the elevated incidence of incomplete medication therapy at discharge, pharmacists may play a vital role in improving patient outcomes by reviewing post-PCI medications at discharge.

METHODOLOGY: This was an Institutional Review Board (IRB) approved, single center, retrospective study comparing post-PCI discharge medication lists before and after implementation of a pharmacist driven consult workflow. Upon consultation, the pharmacist reviewed the post-PCI discharge medication list to determine adherence to current clinical practice guidelines and intervened if necessary. Discharge medication lists were categorized as adherent to guidelines, nonadherent to guidelines but appropriate, or nonadherent to guidelines. The primary outcome evaluated adherence before and after implementation of the pharmacy consult workflow to determine the impact on medication prescribing practices. Adherence was defined as any discharge medication list inclusive of aspirin, high intensity statin, P2Y12I, ACEI/ARB/ARNI, and beta blocker, if appropriate. The secondary outcomes included evaluation of four NCDR metrics before and after the intervention. The NCDR metrics evaluated were the prescription of aspirin, P2Y12I, any intensity statin, and all recommended medications (aspirin, any intensity statin, and P2Y12I).

RESULTS: A total of 264 patients were included in this study with 90 patients in the pre-implementation group and 174 patients in the post-implementation group. For the primary outcome, adherence to guideline directed medications at discharge was 72.2% in the pre-implementation group and 78.7% in the post implementation group ($p = 0.237$). Among the secondary outcomes, there was a slight increase in the prescription of aspirin ($p = 0.843$) and any intensity statin ($p = 0.407$), and a slight decrease in the prescription of a P2Y12I in the post-implementation group ($p = 0.307$). All recommended medications per NCDR were prescribed in 92.8% of the pre-implementation group and 95.6% of the post-implementation group ($p = 0.348$). The most common pharmacist recommendations included escalation to a high intensity statin and addition of a beta blocker.

CONCLUSIONS: Pharmacist intervention increased adherence to post-PCI guideline directed medication prescribing and compliance with NCDR metrics. Limitations included the inability for pharmacists to conduct timely interventions on outpatient PCI discharge medication orders, which accounted for the majority of missed opportunities. On several occasions, accepted inpatient recommendations did not transfer to discharge orders, leading to nonadherence. These limitations warrant a need for ongoing education and process improvement.

11:20am – 11:35am F **Evaluation of Prophylactic Antibiotic Selection in the Management of Open Fractures in the Emergency Department** Athena C

Presenters: Julie Lu-Duong

TITLE: Evaluation of Prophylactic Antibiotic Selection in the Management of Open Fractures in the Emergency Department

AUTHORS: Julie Lu, Ashley Crisler, Aayush Patel, Victoria Hunt, Matthew McAllister

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Open fractures are associated with an increased risk of infection, which can lead to serious complications, such as osteomyelitis and amputation. External environmental contaminations, such as saltwater, soil, and fecal matter, along with reported medication allergies, can complicate prophylactic antibiotic selection in the management of open fractures. Implementing an institutionalized prophylactic antibiotic guideline is vital in reducing the risk of infection by providing a framework for antibiotic selection and administration. This study aims to assess the impact of antibiotic selection for open fractures in the emergency department (ED) before and after implementation of a prophylactic antibiotic guideline.

METHODOLOGY: This is an IRB-approved, single-center, retrospective chart review conducted at a level II trauma center to compare antibiotic selection before and after implementation of a prophylactic antibiotic guideline for patients with open fractures. A search of the electronic health record (EHR) database was conducted to identify patients ≥ 18 years old admitted to the ED with a diagnosis of an open fracture during the pre-implementation (June 2023 to October 2023) and post-implementation (November 2023 to March 2024) phases. Patients who transferred from another hospital or expired while in the ED were excluded. The primary outcome assessed appropriate antibiotic selection for open fractures before and after guideline implementation. The secondary outcome evaluated time from ED admission to antibiotic administration.

RESULTS: TBD

CONCLUSIONS: TBD

11:20am – 11:35am L **Comparison of CGRP monoclonal antibody combination therapy for migraine prevention** Athena A

Presenters: Ashly Lamosek

TITLE: Comparison of CGRP monoclonal antibody combination therapy for migraine prevention

AUTHORS: Ashly Lamosek, Kerri Jones, Olivia Morgan, Alexandria May, and Millad Sobhanian

OBJECTIVE: Impact of standard of care medications with the subcutaneous CGRP mAbs on monthly migraine days.

ABSTRACT

Background: Calcitonin gene-related peptide (CGRP) monoclonal antibodies (mAb) are often added to a patient's migraine regimen in combination with standard of care (SoC) medications if they do not respond well to current therapy. Due to limited literature available on the ideal combination regimen, the purpose of this study is to evaluate the impact of various SoC medications combined with subcutaneous CGRP mAbs (erenumab, galcanezumab, and fremanezumab) on monthly migraine days (MMD).

Methods: A retrospective chart review of thirty-seven adult patients receiving treatment for migraine prevention between January 2022 and June 2023 was conducted to analyze the safety and efficacy of various combination regimens with CGRP mAbs. Patients were included if they were 18 years or older, diagnosed with migraine headache by a licensed neurologist or neurology-specialized advanced practice provider, and had at least one follow-up visit after treatment initiation of the CGRP mAb. The primary outcome of this study was a reduction of ≥ 50% response rate in monthly migraine days (MMD) at first follow-up visit within 3 to 6 months after initiation of CGRP mAb.

Results: OnabotulinumtoxinA and antidepressants in conjunction with a CGRP mAb achieved a reduction of 50% or more in MMD by first follow-up visit with an average change of 72% and 50%, respectively.

Conclusion: Overall, onabotulinumtoxinA and antidepressants appear to be effective in reducing MMD by the first follow-up visit. Larger studies are warranted to further investigate the impact of combining CGRP mAbs with specific SoC medications.

11:20am – 11:35am E **Impact of Potassium Chloride Removal from Pediatric Diabetic Ketoacidosis Two Bag System** Athena H

Presenters: Bailey Horne

TITLE: Impact of Potassium Chloride Removal from Pediatric Diabetic Ketoacidosis Two Bag System

AUTHORS: Bailey Horne, Alicia Sanchez, Kelley Norris, Smitha Mathew, Mary Lynn Sheram, Christopher Campbell

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Diabetic ketoacidosis (DKA) is a life-threatening complication of diabetes mellitus requiring administration of crystalloid fluids and insulin, correction of acidosis, and electrolyte replacement. The two-bag fluid system is the national standard for pediatric DKA management, allowing for dextrose concentration titration to maintain euglycemia during insulin treatment. Components of the two-bag fluid system may vary based on institutional preferences and availability. Our institution's two-bag fluid system consists of 0.9% or 0.45% sodium chloride (NaCl), 20 milliequivalents (mEq) of potassium phosphate, and 20 mEq of potassium chloride (KCl) per liter, with a second bag containing dextrose 10% with the same electrolytes. Although maintenance fluid selection amongst crystalloid fluids has been previously studied, few studies have assessed the impact of electrolyte supplementation and/or replacement during DKA treatment. It is known hyperchloremic metabolic acidosis is one complication of DKA treatment that may prolong time to recovery due to the link between total chloride administration and the time to bicarbonate normalization. The aim of this retrospective study is to evaluate if the removal of KCl from the two bag fluid system results in faster DKA resolution without hyperchloremic metabolic acidosis. We hypothesize that patients that received a two-bag system with 0.45% NaCl without KCl will result in quicker DKA resolution without hyperchloremic metabolic acidosis.

METHODOLOGY: This is a single center, retrospective chart review to determine if the removal of KCl from the two bag fluid system results in faster DKA resolution without resultant hyperchloremic metabolic acidosis. Patients were included if they were less than 18 years old admitted to Children's Hospital of Georgia at Wellstar MCG Health

pediatric intensive care unit (PICU) from December 2021 through December 2023 that followed the institution's DKA guideline. Patients were excluded if they were greater than 18 years old, pregnant, or deviated from our institution's DKA guideline. Basic demographic information was collected, as well as PICU length of stay (LOS), total chloride and KCl received (mEq/kg), timing of long-acting insulin administration, and administration of antibiotics.

RESULTS: TBD

CONCLUSIONS: TBD

11:20am – 11:35am ' **Community Care Prescription Handling** Athena I

Presenters: Harrison Riggs

TITLE: Community Care Prescription Handling

AUTHORS: Harrison Riggs, Sebastian Skordallos, Shannon Cash, Adrianna Smith

OBJECTIVE: Understand the importance of following established drug CFUs and completing PADRs when appropriate.

SELF ASSESSMENT QUESTION: Following established drug CFUs and completing PADRs ensures the medication selected is?

BACKGROUND: Throughout the Department of Veterans Affairs (VA), Veterans are authorized to receive community care if certain eligibility criteria are met. These criteria are dependent upon healthcare needs of each individual veteran and what the select VA facility is able to offer. The intent of this project is to evaluate the current processes in place for the handling of community care prescriptions that require a prior authorization drug request (PADR) to be completed prior to dispensing and to develop standard operating procedures to ensure the appropriate handling of these prescriptions moving forward.

METHODOLOGY: This is a retrospective observational study of Veterans in the Central Alabama Veterans Health Care System who received non-formulary (NF) or formulary requiring prior authorization (PA-F) community care prescriptions from June 30, 2022 – July 1, 2023. Patients were included in this study if they received a NF or PA-F prescription during this specified time period. In this study a NF of PA-F community care prescription is defined as any prescription that originated outside of the VA, and requires a PADR to be completed prior to dispensing for approval. The primary outcome being assessed was the number of NF or PA-F community care prescriptions that have been filled without consult or appropriate note title in the computerized patient record system (CPRS). The secondary outcome of interest was the incurred annual cost of dispensing these community care prescriptions that were filled without consult or appropriate note title. Encrypted Microsoft excel spreadsheets was utilized to store data that has been extracted from patient electronic medical records and CPRS dashboards. The total sample size will be 2975 which is the total number of non-formulary community care prescriptions issued during the specified time. Descriptive statistical analysis was utilized to evaluate all outcomes.

RESULTS: Of the 2,975 community care prescriptions that were filled requiring a PADR, 763 (25.6%) were willed without appropriate consult, note title, or had a PADR that did not meet criteria. Of the $6 million spent on community care prescriptions requiring a PADR, $871,000 was spent on medications that were filled without appropriate consult, note title, or an approved PADR.

CONCLUSIONS: Following CFU and PADR guidance ensures Veterans are receiving medications that are safe, efficacious, and appropriate for their disease states. This quality improvement project highlights the importance of pharmacists and their role in evaluating these therapies against established CFUs for prescriptions that originate outside of the VA from community care providers.

11:20am – 11:35am M **Antidepressant Prescribing: Insights from Family Medicine Residents with Clinic-Embedded Pharmacists** Athena G

Presenters: James Elliott

TITLE: Antidepressant Prescribing: Insights from Family Medicine Residents with Clinic-Embedded Pharmacists

AUTHORS: James Elliott, Brandi Dahl, McKenzie Highsmith, Madison Sutton

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Antidepressant medications are commonly used in developed countries and frequently continued for many years. These medications often carry risks related to drug interactions and side effects, which can increase as patients age. A gap in evidence exists focusing on physician practices related to setting expectations and educating patients on long-term use when initiating therapy. This cross-sectional study aims to gain insight into the shared decision-making conversations and counseling related to duration, therapy selection, and long-term risks that occur when antidepressant medications are first prescribed.

METHODOLOGY: Resident physicians at three university-affiliated family medicine clinics were asked to participate in a voluntary, online cross-sectional survey. Questions were created to assess prescribing practices and patient education efforts when initiating common antidepressant medications. Likert scale rankings were utilized for ranking position statements and common patient counseling points. University IRB approval was granted, and informed consent was collected. Participants were asked to provide their current year in post-graduate training, but no other identifying information was collected. Descriptive statistics were used for global survey responses. Kruskal Wallis analysis was used to compare ordinal data across three groups (post-graduate year one, two, and three). Prior Doctor of Pharmacy (PharmD) education related to prescribing antidepressant pharmacotherapy was evaluated via Mann-Whitney U analysis as a potential confounding factor due to increasing exposure to embedded clinical ambulatory care pharmacists over the three-year residency training period. The survey was completed by 18 family medicine residents.

RESULTS: Through this survey, several opportunities for additional education related to antidepressant prescribing were revealed. Out of the 35 items that were surveyed, ANOVA analysis revealed statistically significant differences across the class ranks for 2 of the 35 items. Through t-test analysis, 2 of the 35 items revealed a statistically significant difference between those who had received prior PharmD education regarding antidepressant medications.

CONCLUSIONS: Many survey items showed trends across each residency year class revealing opportunities for additional training. As expected, the data suggest increasing confidence as residency training nears its end, but for items related to previous PharmD training, the results suggested previous education led to less frequent counseling related to adherence. The small sample limits the external validity of this survey, and each clinic already has a pharmacist embedded in the clinic as faculty. More studies with larger sample sizes and a variety of clinics are needed to gain better understanding of antidepressant prescribing practices of family medicine residents. The data collected will be used to provide educational programming to the family medicine residents in the coming months.

11:20am – 11:35am R **Evaluation of Adherence to Evidence-Based Practices for Moderate and Severe Traumatic Brain Injury** Olympia 2

Presenters: Danielle Wilson

TITLE: Evaluation of Adherence to Evidence-Based Practices for Moderate and Severe Traumatic Brain Injury

AUTHORS: Danielle Wilson, Chris Nixon, Doug Carroll

OBJECTIVE: Understand evidence-based practices for the management of moderate and severe traumatic brain injury

SELF ASSESSMENT QUESTION:

BACKGROUND: About 2.5 million individuals suffer from a traumatic brain injury (TBI) each year in the United States per the CDC. TBIs often result from motor vehicle accidents, falls, occupational and sporting accidents, and assaults. Primary brain injury is the trauma occurring at the time of impact, while secondary injury involves cellular, chemical, tissue, and/or vascular changes in the brain following the trauma itself. The goal of initiating therapy for TBI is to prevent or minimize secondary brain injury. The purpose of this research was to assess DCH Regional Medical Center's adherence to current guidelines and evidence-based literature for the treatment of moderate and severe TBI.

METHODOLOGY: Patients were screened for inclusion from May 1, 2021 through November 30, 2023. Eligible participants included those ≥19 years of age who were admitted to the trauma surgical intensive care unit (TSICU) with moderate or severe TBI (GCS ≤ 12). Retrospective chart reviews were completed for the 34 patients who met inclusion criteria.

RESULTS: TBD

CONCLUSIONS: TBD

11:20am – 11:35am R **The Development of Standardized Antidote and Reversal Agent Protocols and Order Sets** Parthenon 1

Presenters: Jonathan Chappell

TITLE: The Development of Standardized Antidote and Reversal Agent Protocols and Order Sets

AUTHORS: Jonathan Chappell, Mariah McKinney, Whitney Elliott, Hunter Perrin

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: One of the 2022-2023 Institute for Safe Medication Practices Targeted Best Practices is to ensure availability, standardized protocols, order sets, and instructions for use as appropriate for facility antidotes and reversal agents. Antidotes and reversal agents are time sensitive medications that are often used infrequently. The aim of this project is to assess the current state of antidote and reversal agent management within the facility. This includes identifying and closing gaps in existing policies, PAR levels, stock locations, order sets, and protocols. This project is the second year of a quality improvement project that was started in 2022. Year one of the project involved collection of current state and retrospective usage data as well as the development of several antidote and reversal agent order sets. Data was collected from electronic health records, inventory sources, and Omnicell reports. This data was used to determine which antidotes and reversal agents would require the establishment of an order set, protocol, or instructions for use. Availability of these agents was achieved by ensuring that PAR levels were maintained. At the end of project year one: 34% of antidotes and reversal agents had an existing order set, 74% were stocked at appropriate PAR level, 16% had an existing protocol, and 0% had existing instructions for use.

METHODOLOGY: Year two of this project has focused on further development of order sets, protocols, and instructions for use for antidotes and reversal agents. Antidotes and reversal agents which lacked order sets were prioritized through a risk development strategy to determine which agents are used most frequently and which agents require multi-step processes for administration. Facility policies which govern all antidotes and reversal agents will be developed to direct healthcare providers to the appropriate resources and ensure prompt administration to the patient. In addition, educational materials regarding these order sets and protocols will be developed and presented to healthcare providers. The primary endpoint of this project is the percentage of facility antidotes and reversal agents that have existing order sets. The secondary endpoints include the percentage of facility antidotes and reversal agents that are currently stocked in the pharmacy at appropriate PAR levels, the percentage of existing protocols for facility antidotes and reversal agent use, and the percentage of currently available instructions for use for facility antidotes and reversal agents.

RESULTS: TBD

CONCLUSIONS:

11:20am – 11:35am R **The Impact of a Pharmacist-Driven Insulin Protocol on Glycemic Management in the Intensive Care Unit** Olympia 1

Presenters: Sydney Davis

TITLE: The Impact of a Pharmacist-Driven Insulin Protocol on Glycemic Management in the Intensive Care Unit

AUTHORS: Sydney Davis, Kinsey McClure, Michael Maccia, Eden Brewington, Daniel Smith

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: The 2022 American Diabetes Association guidelines recommend a glucose goal of 140-180 mg/dL in critically ill, hospitalized patients. Effective glucose control in an intensive care unit (ICU) setting can decrease ICU length of stay, incidence of hospital-acquired infection, time on mechanical ventilation, and incidence of acute kidney injury. Previous studies evaluating the use of a pharmacist-driven glycemic control protocol in high-risk patients have shown reduced hypoglycemic and hyperglycemic events, and a faster time to glucose control when compared to standard insulin management. The purpose of this study was to compare outcomes pre- and post-implementation of a pharmacist-driven insulin protocol in critically ill patients of the ICU.

METHODOLOGY: This was a single-center, IRB-reviewed, determined exempt, pre-post intervention study. Pharmacists covering the Moses Cone Hospital Medical Intensive Care Units (MICUs) identified patients admitted to the MICUs for greater than 24 hours with two or more continuous blood glucose (CBG) readings greater than 180 mg/dL who were receiving enteral nutrition via tube feeds. Pharmacists selected an appropriate insulin regimen for each patient including sliding-scale insulin, basal insulin, and/or tube-feed coverage and documented insulin adjustments daily. To further optimize patient care, diabetes coordinators within the hospital system were consulted for patients included in the study and communicated their recommendations to the pharmacists daily. Patients were discontinued from the study once they transferred out of the MICU and/or the critical care service or when tube feeds were discontinued, whichever came first. The primary endpoint was the percentage of patients that attain blood glucose control (defined as at least three consecutive CBGs 100-180 mg/dL in 24 hours). Time to blood glucose control served as the secondary endpoint.

RESULTS: This pre-post study included 111 patients, 79 in the pre-intervention group and 32 in the post-intervention group. The percentage of patients who attained blood glucose control in the pre-intervention group was 74.7% compared to 93.8% in the post-intervention group with a risk ratio of 1.26 (95% CI 1.07-1.47; p 0.023). The time to blood glucose control was 60.3±51.5 hours in the pre-intervention group compared to 36.6±27.2 hours in the post-intervention group (p 0.024), with a greater incidence of continued control in the post-intervention group (11.4% vs 26.7%). There were more hypoglycemic events (CBG less than 70mg/dL) per patient in the post-intervention group compared to the pre-intervention group (0.78 vs 0.58).

CONCLUSIONS: Implementation of a pharmacist-driven insulin protocol in the MICU resulted in a higher percentage of patients attaining blood glucose control in a shorter period of time compared to patients observed prior to protocol initiation.

11:20am – 11:35am F **Effect of Treatment on Symptom Resolution in PCR (+) and Toxin (-) C. difficile Infections** Athena D

Presenters: Plamen Mangarov

TITLE: Effect of Treatment on Symptom Resolution in PCR (+) and Toxin (-) C. difficile Infections

AUTHORS: Plamen Mangarov, Brook Jacobs

OBJECTIVE: Does treating patients with PCR (+) and Toxin (-) C. diff tests lead to faster symptom resolution

SELF ASSESSMENT QUESTION: In progress

BACKGROUND: In patients with suspected CDI (Clostridioides difficile infection), multiple laboratory tests and patient specific factors are used to assess the need for treatment. Clostridioides difficile Polymerase Chain Reaction (C.diff PCR) and Clostridioides difficile Toxin Enzyme Immunoassays (Toxin EIA) are some of the tests used for CDI diagnosis. Sensitivity and specificity are increased by using these tests together to detect both the presence of C. diff and toxins in the gut. While a PCR positive (+) and Toxin positive (+) or PCR negative (-) and toxin negative (-) tests are positive or negative for CDI respectively, a PCR (+) and Toxin (-) test is interpreted as indeterminate. The role of treatment is still unclear in these patients, and many times, treatment decisions are made based on the patient's clinical presentation and the provider's judgement. The purpose of this study was to determine if treating patients with PCR (+) and Toxin (-) C. diff tests lead to faster resolution of symptoms and improved outcomes.

METHODOLOGY: This study was a single center, retrospective chart review conducted from October 2022 to October 2023 that included hospitalized patients age ≥ 18 years with symptoms of CDI (≥3 loose stools in the last 24 hours) and subsequent CDI testing resulting with PCR (+) and Toxin (-). Patients were excluded if they received a laxative in the last 72 hours prior to CDI testing. The primary outcome of the study was time to symptom resolution which is defined as less than 3 loose stools in 24 hours. Secondary outcomes included all-cause mortality within 30 days of CDI testing, CDI related complications (colectomy, megacolon, ICU admission), hospital length of stay, hospital readmission due to CDI, conversion to PCR positive and Toxin positive if retested, and symptom resolution at 10 days.

RESULTS: A retrospective chart review was performed for 142 patients of which 86 were included in the study. There were 77 patients in the treatment group compared to 9 in the no treatment group. The primary endpoint of time to symptom resolution was 3.96 days in the treatment and 0.98 days in the no treatment group which demonstrated a statistically significant difference (p=0.00034). Symptom resolution had no statistically significant difference between the two groups with 71.4% in the treatment compared to 88.9% in the no treatment group. All secondary outcomes demonstrated no statistically significant difference between both groups. However, there was a trend for conversion to PCR positive and Toxin positive to be higher in the no treatment group.

CONCLUSIONS: Although time to treatment resolution demonstrated a statistically significant difference between the groups, no conclusion can be made as the study was not adequately powered. Overall, there was no difference between groups for symptoms resolution, and there was no difference in the secondary outcomes. There is a need for further adequately powered studies to make further conclusions about whether patients with PCR positive Toxin negative tests need to be treated, and to determine if treatment plays a role in the conversion to PCR positive Toxin positive.

11:20am – 11:35am T **A Retrospective Comparison of Oral versus Intravenous Lorazepam for Alcohol Withdrawal Syndrome** Athena B

Presenters: Victoria Walker

TITLE: A Retrospective Comparison of Oral versus Intravenous Lorazepam for Alcohol Withdrawal Syndrome

AUTHORS: Victoria Walker, Christopher Moses, Nassim Najafisales, Naadede Badger-Plange

OBJECTIVE: Evaluate the use of oral and intravenous lorazepam for alcohol withdrawal syndome.

SELF ASSESSMENT QUESTION: What percentage of adults that regularly consume alcohol will develop alcohol use disorder?

BACKGROUND: The Clinical Institute Withdrawal Assessment for Alcohol Scale Revised (CIWA-Ar) is a validated assessment tool that quantifies alcohol withdrawal syndrome using a 10-item scale to evaluate signs and symptoms of withdrawal. Benzodiazepines are utilized for symptom-triggered therapy based on the CIWA-Ar score to manage symptoms and prevent progression to severe complications related to alcohol withdrawal. Benzodiazepine shortages can have a negative impact on patient care. Developing drug shortage strategies to use alternative dosage forms or medications within the same class can mitigate the negative impact of benzodiazepine shortages.

Oral lorazepam was utilized as a mitigation strategy at Piedmont Atlanta Hospital during critical shortages of parenteral lorazepam. Intravenous lorazepam was reserved for patients that were unable to take medications by mouth and CIWA-Ar scores greater than 17. The purpose of this study is to determine the incidence of seizures in patients that received oral versus intravenous lorazepam for alcohol withdrawal.

METHODOLOGY: This was a single-center, retrospective chart review of adult patients admitted with alcohol withdrawal that received either oral or intravenous lorazepam between August 1, 2021 and August 1, 2023. Patients that were transferred to the intensive care unit (ICU) within 24 hours of admission, had an initial CIWA-Ar score of 17 or greater, or documented use of benzodiazepines prior to admission were excluded. The primary outcome was the incidence of alcohol withdrawal seizures. The secondary outcomes were cumulative benzodiazepine use, maximum CIWA-Ar score, total days of treatment, and need for escalation of care requiring transfer to the ICU

RESULTS: In progress

CONCLUSIONS: In progress

11:40am – 11:55am M **Evaluating pharmacotherapy optimization in pharmacist-led management of type-2 diabetes utilizing continuous glucose monitors**

Presenters: Jasmine King Athena G

Evaluating pharmacotherapy optimization in pharmacist-led management of type-2 diabetes utilizing continuous glucose monitors

Authors: Jasmine L. King, Chelsea Keedy, Dallas Hardin, Sara Little, Araven Thompson, Joseph Crosby, Kristen Pierce

Background: Continuous Glucose Monitors (CGMs) provide valuable insights into glucose trends, aiding individuals with diabetes in managing blood sugar levels more effectively. Given the rising prevalence of diabetes and the innovative nature of CGM technology, we aim to investigate the influence of pharmacist involvement in continuous glucose monitoring (CGM) on the prescribing practices of medications used to treat diabetes. There are currently no studies that have primarily evaluated how pharmacist-led utilization of CGM has affected pharmacotherapy decisions. Our research seeks to evaluate the impact of pharmacist engagement in CGM management on decisions related to high-risk medication use in diabetes management.

Methods: This was a retrospective, observational study conducted at two primary care offices within a community health system from June 1, 2021 to June 30, 2023. A report was generated to include prescriptions sent for CGMs to evaluate prescribing practices of medications used to treat diabetes. Data was collected via electronic spreadsheet. The study population compared adult individuals prescribed a personal CGM device with pharmacist involvement in their diabetes management with usual care. Patients were excluded from the study if pregnant or diagnosed with type-1 diabetes. The primary outcome was the incidence of deprescribing of high-risk medications used to treat diabetes in the pharmacist-led group compared to usual care. High-risk medication was defined as insulin, sulfonylureas, and thiazolidinediones. Secondary outcomes included the incidence of hospitalizations and 30-day hospital readmission. All hypotheses were tested using chi-square test for independence.

Results: The study included a total of 317 participants. There was a total of 184 participants (58%) in the pharmacist-led management group compared to 133 participants (42%) receiving usual care. Overall, 11.4% of participants were deprescribed a high-risk medication in the pharmacist-led group compared to 8.3% participants receiving usual care. The average age of participants was 60 years old, and a little over half (54.6%) of participants were female. Notably, comorbidities such as chronic kidney disease and atherosclerotic cardiovascular disease (ASCVD) were prevalent among participants. Majority of patients (71.3%) were categorized as obese.

Throughout the study period insulin was the most common high-risk medication among participants. While the number of insulin prescriptions increased in the pharmacist led group, participants who received a pharmacist intervention experienced an average reduction in the total daily units of insulin by 1.9 units compared to increase of 2.5 units of total daily units in the usual care group. Additional studies of longer duration are warranted to determine whether a genuine difference exists between the pharmacist-led group and the usual care group.

Conclusion: Our study investigated the impact of pharmacist involvement in continuous glucose monitoring (CGM) on prescribing practices for medications used to treat diabetes. Despite pharmacist engagement leading to a reduction in high-risk medication use, statistical analysis did not reveal a significant difference in pharmacist-led deprescribing. However, this study may suggest a clinically significant result highlighting the importance of pharmacist-driven interventions on both high-risk medication deprescribing and initiating non-high-risk medications with other benefits including weight loss, cardiovascular protection, and renal protection related to diabetes.

11:40am – 11:55am C **Effect of SGLT2 Inhibitors on Chloride Levels in Patients with Acute Decompensated Heart Failure** Parthenon 2

Presenters: Leah Furlough

TITLE: Effect of SGLT2 Inhibitors on Chloride Levels in Patients with Acute Decompensated Heart Failure

AUTHORS: Leah Furlough, Erika Schoenborn, and Kacy Whyte

OBJECTIVE: Investigate the effects of SGLT2i on serum chloride levels in patients admitted with ADHF

SELF ASSESSMENT QUESTION: Does dapagliflozin increase the incidence of hypochloremia in ADHF patients?

BACKGROUND: Heart failure (HF) affects around 6.7 million adults in the United States with an estimated 5-year mortality of 52.6%. Hospitalizations for acute decompensated heart failure (ADHF) are associated with a worse prognosis. HF is managed with four pillars of guideline-directed medical therapy (GDMT), including 1) angiotensin-converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARB), or angiotensin receptor neprilysin inhibitor (ARNI), 2) evidence-based beta blockers (EBBB), 3) mineralocorticoid receptor antagonists (MRA), and 4) sodium-glucose cotransporter-2 inhibitors (SGLT2i). HF and associated GDMT require laboratory monitoring of sodium, potassium, and magnesium. Chloride has previously been disregarded as a marker for outcomes and medication effects, but is now emerging as a possible prognostic marker for HF. Hypochloremia (chloride less than 96 mmol/L) is now considered a predictor of adverse clinical outcomes in patients with HF, including increased risk of mortality and diuretic resistance. SGLT2i have been shown to increase serum chloride levels and reduce diuretic resistance, but there are limited data on their effects on chloride levels in a clinical setting. The aim of this study was to investigate the effects of SGLT2i on serum chloride levels in patients admitted with ADHF.

METHODOLOGY: This was a retrospective, single-site review conducted at East Carolina University Health Medical Center (ECUH MC). Patients admitted for ADHF from July 1, 2021 to July 31, 2023 were identified for analysis and data were obtained from electronic health records. Patients with a primary diagnosis for ADHF, regardless of ejection fraction, who received an ACEi, ARB, or ARNI and MRA during admission were included. Patients on these baseline medications in addition to SGLT2i (dapagliflozin base on formulary) were included in the intervention group. Patients were also required to have a chloride level at the time of admission and discharge.

RESULTS**:** The study population were comparable except there were more black patients in the treatment group. There was no difference statistical difference found between the groups in chloride levels on discharge. No difference was found between the groups for change in chloride level from admission to discharge, hospital length of stay, incidence of HF hospitalizations within 30 days, or incidence of cardiovascular death within study time frame.

CONCULSION: Dapagliflozin did not significantly affect chloride levels on discharge in adult patients admitted for ADHF.

11:40am – 11:55am R **Evaluation of Fluids for Septic Shock in the Emergency Department and the Effect on Patient Outcomes** Olympia 2

Presenters: Randy Hooks

TITLE: Evaluation of Fluids for Septic Shock in the Emergency Department and the Effect on Patient Outcomes

AUTHORS: Randy Hooks; Jason Dover; Sydney Bowman; Cassandra Karas; Blake McClellan; Bernie Olin

OBJECTIVE: To evaluate the appropriateness of fluid resuscitation in patients with septic shock.

Background:

Each year in the U.S., millions of people are diagnosed with sepsis or septic shock. Sepsis is characterized by the body's inappropriate reaction to an infection, resulting in organ dysfunction, shock, or death. In the management of sepsis or septic shock, fluids have been at the forefront of optimizing hemodynamic status and tissue perfusion. Despite the benefits of fluid resuscitation, there can be potential problems with edema, or worsening outcomes in patients with heart or kidney disease. In 2016 and 2021, the Surviving Sepsis Campaign (SSC) promulgates the recommendation to administer a 30 mL/kg crystalloid fluid bolus to patients within the first six hours of being diagnosed with sepsis or septic shock. "We sought to assess

Methods:

This study was submitted and approved by the East Alabama Medical Center Institutional Review Board. A retrospective chart review of up to 200 patients from two-time frames, January 1, 2019 to December 31, 2019, and January 1, 2022 to December 31, 2022, will be evaluated and compared. Inclusion criteria include patients with a minimum age of 19 years, and who received a fluid bolus in the emergency department for sepsis or septic shock. Exclusion criteria include pregnant patients, patients that received a fluid bolus for any other reason other than sepsis or septic shock, and patients with inadequate documentation in the electronic health record. The following data were collected from the patient's electronic health record: demographic information, vital signs, white blood cell count, initial and follow-up lactate levels, baseline serum creatine, serum creatine following the fluid bolus, fluid administration prior to arrival, antibiotics administered, comorbidities, presumed cause(s) of sepsis or septic shock, type of fluid used for fluid bolus, total volume of fluid bolus, vasopressor use, and mortality. Statistical analysis was performed on Microsoft Excel using Student's t-test, Chi-square, or Fisher's Exact test as appropriate.

Results:

88 patients met inclusion criteria in this study. 44 patients were included in the 2019 group and 44 patients were included in the 2022 group. Baseline characteristics were evenly matched between the two groups. Pneumonia and infection of unknown source were frequently the presumed cause of infection between the two groups. This study evaluated the volume of fluid boluses given comparing total body weight and ideal body weight. Based on total body weight, 59% of patients in 2019 and 55% of patients in 2022 who presented with septic shock received the appropriate volume of fluid bolus. Based on ideal body weight, those percentages increase to 77% and 66% respectively between the two groups. On average between the two groups, patients received a 30 mL/kg bolus.

Conclusion:

In conclusion, this study found that in patients who presented with septic shock, an appropriate fluid bolus was administered over half of the time using either total body weight or ideal body weight. The average volume of fluid given between the two groups met the SSC recommendation of 30 mL/kg fluid bolus in patients that presented with septic shock. Further investigation of outcomes and mortality should be explored in future studies.

11:40am – 11:55am R **Pharmacist Driven Antibiotic Second Dosing in the Emergency Department** Parthenon 1

Presenters: Madeline Harper

TITLE: Pharmacist Driven Antibiotic Second Dosing in the Emergency Department

AUTHORS: Madeline Harper, Vince Buttrick, Erik Turgeon

OBJECTIVE: At the conclusion of this presentation, the audience should be able to explain the clinical utility of an antibiotic second administration report in the emergency department setting.

SELF ASSESSMENT QUESTION: What might be the benefit of an antibiotic second dose administration report in the emergency department?

BACKGROUND: Recognition of early signs of infection and timely management of antibiotics can greatly improve patient outcomes according to the Surviving Sepsis Campaign. In patients with septic shock, every hour delay of appropriate antibiotic therapy increases the patient's odds of in-hospital mortality by ~ 7%. While there is no determined rate in patients without septic shock, previous studies have reported a delay in appropriate antibiotic treatment is an independent risk factor for mortality, which was confirmed by systematic review. With an influx of patients in the emergency department (ED), boarding in the ED has historically been a contributor to the delay of antibiotic subsequent administration, negatively effecting patient outcomes. Delays in second administration of antibiotics limits the time of appropriate treatment being received due to the needed concentrations for minimum inhibitory effect also being delayed. Resistant pathogens are exacerbated by this inappropriate therapy and are one of the leading associations of increased morbidity, mortality, and costs. Strategic and appropriate treatment with antibiotics may also help reduce local resistance, decrease treatment duration, and improve overall patient outcomes. This study aimed to determine if emergency medicine pharmacists redosing of antibiotics can reduce frequency of major delays in subsequent administration in sepsis patients admitted to the ED prior to bed placement while improving overall patient outcomes.

METHODOLOGY: This is a pre- and post-intervention chart review of emergency department encounters at a single-center, 607-bed teaching hospital. The intervention for this study is the implementation of an EMP report of patients currently on antibiotics in the emergency department (ED) which was reviewed once per shift, with shifts being from 7AM-330PM, 12PM-10PM, and 9PM-7AM. This report was utilized for the purpose of reviewing patients and the need for antibiotic second dose orders or administration in the ED prior to inpatient bed placement. A delay was defined as antibiotic administration greater than 1 hour before or after the scheduled administration time per institutional policy. The pre-intervention group consisted of patients who received an initial antibiotic dose in the ED requiring a second dose of antibiotic between October 2022 – March 2023. The post-intervention group consisted of patients who received an initial antibiotic dose in the ED requiring a second dose of antibiotic between October 2023 – March 2024. Outcomes were then assessed manually by the investigator through EHR-generated data and manual chart review.

RESULTS: A total of 1,520 orders were included in the study. Baseline characteristics were similar in both the pre-intervention and post-intervention groups. Second dose antibiotic administration delay occurred in 167 (23%) of the 727 orders assessed in the pre-intervention group compared to 173 (21.8%) delays of the 793 orders post-intervention ($p = 0.5892$). A mean time delay of 2.33 hours vs 2.08 hours ($p = 0.2521$) occurred in each group respectively. No difference was found in total ventilator time, ICU admission, or vasopressor usage. A slight difference was observed in mean hospital length of stay (9.2 vs 8.0 days, $p = 0.0153$) and hospital mortality (8.1% vs 5.7%, $p = 0.0703$) between the pre-intervention and post-intervention groups.

CONCLUSIONS: This study showed no statistical difference in second antibiotic administration delays through utilization of a pharmacist-reviewed EMP report. Future investigation with modified reporting strategies is recommended.

11:40am – 11:55am R **Time to Administration of Alteplase Versus Tenecteplase for Acute Ischemic Stroke in the ED** Olympia 1

Presenters: Samantha Pizzurro

TITLE: Time to Administration of Alteplase Versus Tenecteplase for Acute Ischemic Stroke in the ED

AUTHORS: Samantha Pizzurro

OBJECTIVE: Evaluate time-to-administration of tPA vs TNK for AIS by an EM pharmacist at a Primary Stroke Center

SELF ASSESSMENT QUESTION: What is the time to administration of tPA vs TNK for AIS from verbal from the EM physician?

BACKGROUND: Per the 2019 American Heart Association/American Stroke Association Guidelines for the Early Management of Acute Ischemic Stroke, alteplase (tPA) is currently the recommended fibrinolytic, with tenecteplase (TNK) cited as a reasonable alternative, for patients who meet criteria for thrombectomy. Studies have since bolstered the use of TNK in acute ischemic stroke (AIS) patients, regardless of eligibility for thrombectomy, through demonstration of similar neurological outcomes and safety profile to tPA. The objective of this study is to evaluate time-to-administration of tPA versus TNK for AIS prepared at the bedside by an Emergency Medicine (EM) pharmacist at a certified Primary Stroke Center.

METHODOLOGY: This is a single-center, retrospective study evaluating adult patients treated with fibrinolytics for AIS in the ED. Prior to receipt of thrombolytic, an EM pharmacist evaluates candidacy, receives a verbal order from the EM physician, prepares the thrombolytic at bedside, and confirms dosing with a telemedicine neurologist. Adult patients receiving tPA between September 12, 2022 and March 12, 2023 will be compared to those receiving TNK between September 12, 2023 and March 12, 2024 and included in this study. Patients were excluded if fibrinolytics were prepared in the central pharmacy, there was unavailable data regarding time of verbal fibrinolytic order from an EM physician, or they were a part of a vulnerable population. The primary endpoint is to compare time from verbal fibrinolytic order from the EM physician to fibrinolytic administration in patients with AIS. Secondary endpoints will assess door-to-needle time, change in NIHSS score at hospital discharge, survival to hospital discharge, hospital length of stay (LOS), intensive care unit (ICU) LOS, and incidence of adverse drug events (ADEs). Data to be collected includes patient demographics, baseline labs, time from ED arrival to fibrinolytic administration, NIHSS scores, ADEs, ICU and hospital LOS, and thrombectomy candidacy. Descriptive statistics will be utilized to analyze baseline characteristics. Groups will be compared using chi-squared tests for categorial data and t-tests for continuous data.

RESULTS: TBD

CONCLUSIONS: TBD

11:40am – 11:55am F **Substituting linezolid for vancomycin to treat infection in patients with elevated body mass index** Athena D

Presenters: Daniel Rogers

TITLE: Substituting linezolid for vancomycin to treat infection in patients with elevated body mass index

AUTHORS: Daniel Rogers, Kristen Paciullo, Ronald Trible

OBJECTIVE: Explain the impact of a health system protocol for utilizing linezolid rather than vancomycin in individuals with increased body mass index

SELF ASSESSMENT QUESTION: This study showed that utilizing linezolid over vancomycin for ABSSSI and pneumonia correlated with which outcome?

A: Decreased days of intravenous therapy, B: Decreased patients with subtherapeutic vancomycin levels, C: Decreased acute kidney injury, D: Increased severe thrombocytopenia

BACKGROUND: Acute bacterial skin and skin structure infections (ABSSSI) and pneumonia are commonly treated in the hospital setting. Methicillin-resistant Staphylococcus aureus (MRSA) can cause severe forms of these infections and therefore vancomycin is often used as empiric coverage. Vancomycin dosing relies largely on body weight and renal function. In people with increased body mass index (BMI), pharmacokinetics become more unpredictable and adverse drug events more likely. Linezolid, another first line agent recommended for the treatment of ABSSSIs and pneumonia, provides a safe and easily managed option for MRSA treatment without consideration for body weight. We have implemented a protocol that allows providers to order linezolid in place of vancomycin, without infectious diseases consultation, for people with elevated BMI being treated for ABSSSI or pneumonia, if they meet specific criteria. Our study assesses the implementation of this protocol and the observed outcomes in the affected patient population.

METHODOLOGY: A multi-center, retrospective chart review IRB-approved study was conducted to analyze patients meeting inclusion criteria during an eight-month period pre- and post-implementation of the linezolid BMI protocol (April 1, 2022 through November 30, 2022 and April 1, 2023 through November 30, 2023). Included patients were at least 18 years old, had a BMI of at least 30, and had either ABSSSI or pneumonia with a positive MRSA culture treated with either vancomycin or linezolid. Patients were excluded if they were receiving two or more serotonergic drugs, had severe thrombocytopenia at baseline, had secondary infectious concerns necessitating prolonged antibiotic therapy, or if they received less than 48 hours of antibiotics. The primary outcome was the percentage of patients receiving linezolid who met eligibility criteria prior to and post implementation of the protocol. Secondary outcomes include days of vancomycin therapy, critical vancomycin levels, subtherapeutic vancomycin levels, acute kidney injury, severe thrombocytopenia, time to therapeutic drug level, day of transition from IV to PO antibiotic therapy, and hospital length of stay.

RESULTS: Ultimately, 38 patients were included in the pre-protocol group and 65 in the post-protocol group. Baseline demographics were similar between the two groups with the exception of a lower percentage of individuals initially receiving vancomycin in the post-protocol group (97.4% vs 78.5%, $p = 0.02$). The pre-protocol group had a lower percentage of individuals who received linezolid compared to the post-protocol group (18.4% vs 46.2%, $p = 0.005$) and this correlated with a decrease in average days of vancomycin therapy (5.8 vs 3.7, $p = 0.03$). The pre-protocol group had higher average days of intravenous (IV) therapy (6.1 vs 5.1) but a shorter average length of hospital stay (18.3 vs 27.8 days). The pre-protocol group also had a higher percentage of patients with sub-therapeutic vancomycin levels (23.7% vs 7.7%, $p = 0.02$) and a longer average time to therapeutic drug level (56.0 vs 30.8 hours, $p = 0.0006$). Additional secondary outcomes were statistically similar between the groups and no patients in either group experienced severe thrombocytopenia.

CONCLUSIONS: Following implementation of the protocol to increase the use of linezolid for ABSSSI and pneumonia in patients with elevated BMI, we found an increase in the percentage of patients receiving linezolid for these indications. Despite a small sample size and only half of eligible patients receiving linezolid in the post-

protocol group, this antimicrobial stewardship strategy was successful in increasing the utilization of linezolid without an increase in thrombocytopenia. This strategy also reduced pharmacokinetic challenges faced with vancomycin usage in this patient population.

11:40am – 11:55am F **Universal Nasal Decolonization with an Alcohol-Based Antiseptic Versus Mupirocin in Patients Admitted to the Burn Service** Athena C

Presenters: Arefa Bacchus

TITLE: Impact of Universal Nasal Decolonization with an Alcohol-Based Nasal Antiseptic Versus Mupirocin on Infection Rates and Antimicrobial Utilization in Patients Admitted to the Burn Service

AUTHORS: Arefa Bacchus, John Williamson, Olivia Randazza, Kristin A. Rebo, Seth Garner, Alex D. Taylor

OBJECTIVE: To assess the impact of universal nasal decolonization with an alcohol-based nasal antiseptic versus mupirocin on infection rates and antimicrobial utilization in burn inpatients.

SELF ASSESSMENT QUESTION: Nasal decolonization with mupirocin has historically been used to prevent spread of and infections caused by S. aureus, but its use may be limited by what factors?

BACKGROUND: Staphylococcus aureus is commonly identified as a commensal organism of skin and mucosal flora, including the anterior nares of 20 to 80% of the population. Persistent nasal colonization with S. aureus has been associated with increased S. aureus infections in several patient populations including patients with burn injury. Nasal decolonization targeting S. aureus with mupirocin, an antibiotic ointment, has historically been used to prevent spread of and infections caused by S. aureus, but its use is limited by delayed onset, emerging resistance, and patient non-adherence. Alternatively, alcohol-based nasal antiseptics have been shown to rapidly reduce nasal colonization for a broad range of organisms, including S. aureus, after a single dose with effects that persist for up to 12 hours. On January 31, 2023, an alcohol-based nasal antiseptic protocol was implemented at this institution to replace mupirocin decolonization. MRSA nasal screening is conducted at admission followed by universal decolonization performed with an alcohol-based nasal antiseptic applied twice daily for the duration of the admission to all patients admitted to the burn service. The purpose of this study is to evaluate the impact of universal nasal decolonization with an alcohol-based nasal antiseptic versus mupirocin on infection rates and antimicrobial utilization in burn inpatients.

METHODOLOGY: This study is a single-center, retrospective, cohort analysis of adults ≥18 years of age admitted to the Atrium Health Wake Forest Baptist burn service from February 1, 2022 to September 30, 2022 (nasal mupirocin cohort) and February 1, 2023 to September 30, 2023 (nasal alcohol-based antiseptic cohort) that received at least one dose of mupirocin or alcohol-based nasal antiseptic decolonization. Patients were excluded if they were admitted for a non-burn injury, admitted to the burn service for less than 4 days, or received nasal decolonization in the 6 months prior to admission. The primary outcome was the rate of patients with a staphylococcal infection, defined as a staphylococcal organism identified from a blood, respiratory, and/or wound culture with corresponding pneumonia, bacteremia, or skin and soft tissue infection. Key secondary outcomes included MRSA event rate, central line-associated bloodstream infection rate, antimicrobial days of therapy, and ICU length of stay. Key baseline characteristics such as MRSA colonization at admission, total burned surface area, and Baux score were collected. Systemic antibiotics, nasal decolonization received, and data from positive cultures were collected for the admission. Results were analyzed using descriptive statistics. Comparisons of continuous variables were conducted using Student’s t-test or Mann-Whitney U test, and Chi squared or Fisher’s exact test was utilized for comparisons of categorical nominal data.

RESULTS: This study included a total of 154 patients. For the primary outcome, rate of patients with a staphylococcal infection, 7 (10%) of patients had a bacteremia, skin and soft tissue infection, or pneumonia in the mupirocin cohort versus 16 (20%) in the alcohol-based nasal antiseptic cohort with a corresponding p-value of 0.08. For the rate of patients with an infection caused by any pathogen, 12 (16%) of patients had a bacteremia, skin and soft tissue infection, or pneumonia in the mupirocin cohort versus 27 (33%) in the alcohol-based nasal antiseptic cohort with a statistically significant p-value of 0.02.

CONCLUSIONS: Patients admitted to the burn service who received alcohol-based nasal antiseptic had numerically more staphylococcal infections and overall infections when compared patients who received

mupirocin, including significantly more overall infections and bloodstream infections. Based on these results, the Infection Prevention group has extended the study to further investigate these findings.

11:40am – 11:55am T **Lorazepam versus phenobarbital in the treatment of alcohol withdrawal in non-ICU patients** Athena B

Presenters: Kelley Frances Henley

TITLE: Lorazepam versus phenobarbital in the treatment of alcohol withdrawal in non-ICU patients

AUTHORS: Kelley Frances Henley, Rachele Hollis, Sarah Boyko, Kristina Evans

OBJECTIVE: Compare symptom-triggered lorazepam and scheduled phenobarbital taper in non-ICU patients.

SELF ASSESSMENT QUESTION: How did safety outcomes compare between the phenobarbital and lorazepam group?

BACKGROUND: Benzodiazepines have been the treatment of choice for alcohol withdrawal syndrome (AWS). More recently, phenobarbital has shown promise in treating AWS but is often studied in critically ill patients as an adjunct to another agent or in combination with benzodiazepines. Phenobarbital has certain potential advantages over benzodiazepines for use in AWS such as a decreased incidence of respiratory depression and the ability to “self-taper” due to its extended half-life. The purpose of this study is to compare the treatment modalities of symptom-triggered lorazepam and scheduled phenobarbital taper in non-ICU patients.

METHODOLOGY: A single center retrospective chart review that included adult patients with an active CIWA-Ar nursing monitoring order admitted to a medical/surgical unit or intermediate level care bed between June 1, 2022 and June 30, 2023. Patients were excluded if less than two CIWA-Ar scores were recorded or if concomitant phenobarbital or benzodiazepine doses were administered outside of the emergency department. The primary outcome was time to resolution of AWS defined as time to consecutive CIWA-Ar score less than eight for at least 24 hours after administration of lorazepam or phenobarbital. Secondary outcomes to be assessed include the following: duration of CIWA-Ar monitoring order for nursing, mean change in CIWA-Ar score evaluated daily through the fourth day, length of stay, and the use of adjunct agents. Safety outcomes assessed included: hypotension, decrease in respiratory status, and upgrade in bed status. Institutional IRB approval was exempt for this study.

RESULTS: Patients in the phenobarbital group had resolution of AWS at an average time of 58 hours. Patients in the lorazepam group had resolution of withdrawal at an average time of 62 hours. On average, CIWA-Ar monitoring remained active for 64 hours in the lorazepam group and 87 hours in the phenobarbital group. The change in maximum CIWA-Ar monitoring scores over time did not greatly differ between groups. Patients in the lorazepam group experienced more safety adverse effects such as a decline in respiratory status and hypotension but had shorter hospitalizations and less frequently required escalation of care than the phenobarbital group. The standard phenobarbital order at the study site is five days in duration which may have contributed to longer duration of CIWA-Ar monitoring.

CONCLUSIONS: Phenobarbital and lorazepam had similar resolution time in non-ICU patients. It may be reasonable to recommend discontinuation of CIWA-Ar monitoring once CIWA-Ar scores are less than eight for twenty-four hours.

11:40am – 11:55am E **Acetaminophen vs. Ibuprofen: Third-Line Pharmacotherapy for Patent Ductus Arteriosus Closure** Athena H

Presenters: Lina Cummings

TITLE: Acetaminophen vs. Ibuprofen: Third-Line Pharmacotherapy for Patent Ductus Arteriosus Closure

AUTHORS: Lina Cummings, Mary Hannah Hawkins, Megan Phillips, Meghan Riney, Kathryn Brown

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Patent ductus arteriosus (PDA) is a persistent opening between two major blood vessels from the heart that is important for fetal circulation. In a preterm infant, the ductus arteriosus may not close as expected, leading to a variety of potentially fatal complications such as bronchopulmonary dysplasia (BPD), intraventricular hemorrhage (IVH), and necrotizing enterocolitis (NEC). Indomethacin, ibuprofen, or acetaminophen are used as initial treatment. There is no conclusive evidence to guide treatment when a PDA fails to close after repeated courses of pharmacotherapy. The purpose of this study is to compare the number of successful PDA closures when acetaminophen is used as the third course of pharmacotherapy compared to ibuprofen.

METHODOLOGY: This is a single-center, retrospective cohort study of infants ≤ 37 weeks and 6 days at birth, born between October 2017 and December 2022, with hemodynamically significant PDA (hs-PDA) after a first and second course of acetaminophen treatment. The primary efficacy endpoint was successful PDA closure defined as no or small PDA based on the post-treatment echocardiogram after a third course of treatment of either acetaminophen or ibuprofen. The secondary endpoint is the incidence of NEC, BPD, IVH grade 3 or 4, retinopathy of prematurity requiring surgical intervention, culture-proven sepsis, all-cause mortality following a third treatment course and need for surgical closure. Descriptive statistics were utilized to evaluate the data collected.

RESULTS: Only 26 patients out of 259 met the inclusion criteria, with 8 in the acetaminophen group (APAP) and 18 in the ibuprofen group (IBU). Baseline characteristics were similar between the study groups. A total of 5 (63%) in the APAP group and 14 (78 %) in the IBU group had an initial PDA size defined in the echocardiogram as moderate to large or large. At the end of the third pharmacotherapy course 2 (25%) in the APAP group and 4 (22.2%) in the IBU group had PDA that was moderate or moderate to large. For the primary endpoint there were 0 neonates in the APAP group and 2 (11 %) in the IBU group with a small PDA. Additional courses of pharmacotherapy were given to 6 (75%) in the APAP group and 9 (50%) in the IBU group. For the secondary outcome 3 (37.5%) in the APAP and 3 (16.7%) in the IBU developed culture-proven sepsis, 5 (62.5%) in the APAP group and 12 (66.7%) in the IBU group developed BPD. There was no incidents of NEC or ROP in either group. In the IBU group, 1 (5.6%) developed IVH grade 3 or 4 and 1 (12.5%) in the APAP group had all-cause mortality.

CONCLUSIONS: The primary endpoint was higher in the IBU group compared to the APAP group, suggesting an increase chance of PDA closure with ibuprofen use. The statistical significance is limited due to the small uneven sample size in each treatment arm. More patients in the APAP group received additional pharmacotherapy. It is difficult to determine how many pharmacotherapy courses beyond the third course would yield any benefit without a clear definition of hs-PDA used by the physicians. There was a general decrease in PDA size after the third course of pharmacotherapy in both groups. These findings demonstrate the challenges associated with treating PDA in preterm neonates, emphasizing the need for further research to improve care.

11:40am – 11:55am S **Increase Naloxone Prescribing in a Veteran Administration (VA) Emergency Department** Athena A

Presenters: Nitin Joshi

TITLE: Increase Naloxone Prescribing in a Veteran Administration (VA) Emergency Department

AUTHORS: Nitin Joshi, Andrea Zuloaga

OBJECTIVE:

SELF ASSESSMENT QUESTION:

BACKGROUND: Veterans are estimated to be at very high risk for overdose and suicide. Studies have shown a correlation between opioid prescriptions and overdose deaths among veterans. To address this, the Veteran Administration/ Department of Defense (VA/DoD) published guidelines cautioning against long-term opioid therapy for chronic pain and implemented risk mitigation strategies such as the Stratification Tool for Opioid Risk Mitigation (STORM). This tool uses predictive analytics to estimate Veterans' risk for overdose or suicide, has been mandated by VHA policy since 2018 to further enhance risk mitigation. Washington County, Tennessee is highlighted as being among the top counties at risk for opioid abuse, with synthetic opioids like fentanyl contributing significantly to drug overdose deaths. Increasing access to naloxone is seen as a crucial intervention to prevent opioid overdoses among veterans. The James H. Quillen VA Medical Center has taken steps to combat opioid abuse among veterans; however, missed opportunities were identified with prescribing naloxone through the emergency department which has prompted the need for this project.

METHODOLOGY: This quality improvement project focuses on increasing the prescribing of naloxone through the emergency department at the James H. Quillen VA Medical Center. A review of other VA facility practices was conducted to understand strategies that allowed other facilities to be successful. These strategies were then adopted and adapted to a design template that could be incorporated within the existing workflow in the emergency department. Education was conducted for providers on the importance of prescribing naloxone and how this template could help identify potential patients and ease the prescribing of the medication. Naloxone prescribing patterns in the emergency department will be reviewed at months 3, 6, and 9 to identify the success of the project. Project success is determined by number of naloxone prescriptions prescribed from the emergency department.

RESULTS: In Progress

CONCLUSIONS: