



# ALCALDE XXXVI

SOUTHWEST LEADERSHIP CONFERENCE  
*For Pharmacy Residents, Fellows & Preceptors*

**ABSTRACTS OF PLATFORM PRESENTATIONS**

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## I-A: Ambulatory Care

### PL I-1

#### THE IMPACT OF WAIVED MEDICATION COPAYS ON DIABETES RELATED OUTCOMES AT A FEDERALLY QUALIFIED HEALTH CENTER

Roopali Sharma, Aida Garza, Michelle Nguyen, Morgan Stewart, Leticia Moczygemba; CommUnity Care Health Centers, Austin, TX

**BACKGROUND:** Diabetes (DM) is a chronic health condition associated with many comorbid complications such as cardiovascular, renal, retinal, and neurological disease. Clinical practice guidelines recommend regular monitoring, which is proven to reduce the risk of developing complications. Additionally, studies demonstrate the positive impact of reduced or waived medication copays and a team based care approach on DM related outcomes. The purpose of this IRB approved study is to evaluate the impact of waived copays for chronic medications on DM related clinical outcomes, medication adherence, and achievement of guideline recommended and clinic mandated quality metrics at a federally qualified health center. Additional program goals include adequate follow up with primary care provider (PCP) and care team members, including clinical pharmacist (CPh), care management (CM), and dietician (RD).

**METHODS:** In total, 83 patients were enrolled in a copay waiving pilot program between 5/1/21 and 9/30/21. A retrospective chart review of all data from enrollment until 12/31/21 was completed.

**RESULTS:** Patients were enrolled in the pilot program an average of 160 days. Preliminary analysis shows average hemoglobin A1c (HbA1c) change of -0.8% during enrollment, with 57.8% of patients experiencing improvement in HbA1c. Most (81.9%) patients completed a HbA1c evaluation within 3 months prior to 12/31/21. 94.0%, 86.8%, and 55.4% of patients completed an annual renal function, lipid, and urine albumin evaluation respectively. Of those enrolled, 94.0% completed an annual foot exam and 54.2% completed an annual retinal exam. Patients enrolled in the program met facility goals for completion of annual renal function evaluation (goal  $\geq 70\%$ ) and foot exam (goal  $\geq 86\%$ ). Average adherence, calculated as medication possession ratio (MPR), was 82.9%, with 65.4% of patients achieving MPR  $\geq 80\%$  while enrolled. On average during enrollment, patients saw their PCP 2 times and a CPh

3 times. Average contact by CM was 5 times during enrollment. 44.6% of patients completed an encounter with a RD. Final results and statistical analysis is in progress.

**CONCLUSIONS:** Per this preliminary analysis, it appears that team based care and waived copays are associated with improved HbA1c, high MPR, and achievement of foot exam and renal function evaluation quality metrics.

### PL I-2

#### EFFECT OF TRANSITIONING FROM POINT OF CARE TO VENIPUNCTURE BASED ANTICOAGULATION MONITORING ON SERVICE OPERATIONS AND CLINICAL OUTCOMES.

Shannon R. Walter, Allison Torregrossa, Cesar Muñoz. Harris Health System, Houston, TX.

**PURPOSE:** Though the positive outcomes associated with clinical pharmacist-managed anticoagulation services are well established, the coronavirus disease 2019 (COVID-19) pandemic introduced a significant risk to patients using warfarin. Time in therapeutic range (TTR) of international normalized ratio (INR) is a commonly used quality measure to assess both the safety and efficacy of warfarin anticoagulation therapy. This study aimed to evaluate the impact of transitioning from point-of-care (POC) to venipuncture (VP) based anticoagulation monitoring on service operations and clinical outcomes during the COVID-19 pandemic.

**METHODS:** In this retrospective case-control study, all adult patients with uninterrupted anticoagulation monitoring by a clinical pharmacist from September 1, 2019 through October 31, 2020 were included. The patients' electronic health records were retrospectively reviewed for demographic information, warfarin therapy indication and goal range, INR readings, and number of clinical pharmacist visits and hospitalization for two predetermined 6-month periods. The pre-COVID timeframe was defined as September 1, 2019 to February 29, 2020 and the post-COVID timeframe was defined as May 1, 2020 to October 31, 2020. TTR was calculated using the Rosendaal method.

**RESULTS:** Data analysis in progress.

**CONCLUSION:** Conclusion will be presented upon completion of data analysis.

**PL I-3**

**REAL-WORLD EXPERIENCE WITH SODIUM GLUCOSE CO-TRANSPORTER 2 (SGLT2) INHIBITOR THERAPY IN A LOW-INCOME PATIENT POPULATION: INCIDENCE OF GENITAL MYCOTIC AND URINARY TRACT INFECTIONS**

Neethu Mathew, Dominique Brewster, Caitlin Wilson, Essie Collins, Demi Martinez, Harris Health System, Houston, TX.

**PURPOSE:** Sodium glucose co-transporter 2 (SGLT2) inhibitors act in the renal proximal convoluted tubule to inhibit the reabsorption of glucose resulting in glycosuria. The use of SGLT2 inhibitors has increased over the past years as clinical trials have shown their benefit in reducing the risk of major adverse cardiovascular events, cardiovascular death, hospitalization for heart failure, and adverse renal outcomes in patients with diabetes. However, this class of medication is associated with an increased risk of genital mycotic and urinary tract infections in the general population with diabetes as reported in clinical trials. Currently, there are no studies providing data on the incidence rates of these infections in a low-income population and there is no guidance on when SGLT2 inhibitors should be discontinued after recurrent infections. This study aims to identify incidence of genital mycotic and urinary tract infections associated with the use of SGLT2 inhibitors in patients with type 2 diabetes in a low-income patient population and to evaluate discontinuation of SGLT2 inhibitors due to recurrent genital mycotic or urinary tract infections in patients with type 2 diabetes.

**METHODS:** A retrospective chart review was conducted utilizing electronic medical records of all adult patients 18 to 65 years old with type 2 diabetes having a hemoglobin A1c (HbA1c)  $\geq 8\%$  who are managed by a clinical pharmacy specialist in three outpatient clinics and have been newly initiated on a SGLT2 inhibitor from March 1, 2020 to March 31, 2021. Patients were excluded if they did not meet the inclusion criteria or were lost to follow up due to death during the 6-month study period. The primary outcome is the incidence of genital mycotic or urinary tract infection within 6 months of SGLT2 inhibitor initiation. Data points collected included patient baseline data (age, gender, race/ethnicity, body mass index, insurance status, HbA1c), name of SGLT2 inhibitor prescribed, date when SGLT2 inhibitor was prescribed and/or discontinued, adherence to SGLT2 inhibitor, documentation of genital mycotic or urinary

tract infection, and time to first infection occurrence. The discontinuation of SGLT2 inhibitor after recurrent infection will be noted. Additionally, an exploratory analysis will be conducted to evaluate the use of urinalysis, urine culture, and commonly prescribed agents by physicians to manage the infections at the outpatient clinics.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

**PL I-4**

**FACTORS ASSOCIATED WITH IMPROVED A1C VALUES AMONG PATIENTS WITH HIGH-DOSE INSULIN USE AND UNCONTROLLED TYPE 2 DIABETES MELLITUS.**

Wuenseslao Hernandez, Shannon R. Walter, Ryan A. Popp, Harris Health System, Houston, TX.

**PURPOSE:** The National Committee for Quality Assurance – Healthcare Effectiveness Data and Information Set (HEDIS) is a set of measures utilized by healthcare organizations to evaluate performance and drive healthcare quality. For diabetes mellitus, HEDIS provides measure specifications to define effectiveness of care. According to the HEDIS Comprehensive Diabetes Care measure, an A1C value less than 8.0% is indicative of glycemic control; conversely, an A1C greater than 9.0% represents poor glycemic control. Individuals with poor glycemic control are more likely to develop complications and can be more difficult to treat. Additionally, previous studies have demonstrated worse outcomes in patients using high-dose insulin ( $> 1$  unit/kg/day). The objective of this study is to determine which factors are associated with an improvement in A1C values among patients with poorly controlled diabetes using high-dose insulin.

**METHODS:** This retrospective case-control study included all patients 18 years or older with an A1C value greater than 9.0% and a prescription for high-dose insulin who presented to a primary care health clinic at Harris Health System between February 1, 2021, and March 31, 2021. Patients were excluded if they had type 1 diabetes, were pregnant, or lost to follow-up. The patients' electronic health records were retrospectively followed for a duration of 8 months from the index A1C date. Data on factors that could influence diabetes control were collected and analyzed for each patient including demographic information,

insurance status, A1C values, body mass index, metabolic syndrome, diabetes medication use, adherence to diabetes medications, number of physician visits, and use of ancillary services including the clinical pharmacy specialist, nutritionist, or patient educator. Variables that differed significantly (using alpha of 0.05) between patients with an ending A1C  $\geq 9.0\%$  versus  $< 9.0\%$  were included in a logistic regression analysis to determine which variables are associated with improved A1C values.

**RESULTS:** 1,505 patients were screened for eligibility and 249 patients satisfied the inclusion and exclusion criteria. 85 patients (34.1%) achieved an A1C of  $< 9.0\%$  and 43 patients (17.3%) achieved an A1C  $< 8.0\%$ . The only factor that improved the odds of achieving A1C to  $< 9.0\%$  or to  $< 8.0\%$  was adherence to diabetes medications (OR 4.035 [95% CI 2.197 to 7.527] and OR 3.830 [95% CI 1.878 to 7.931], respectively). Starting A1C (OR 0.7651 [95% CI 0.6192 to 0.9301]) and total units of insulin per kilogram per day (OR 0.9098 [95% CI 0.8448 to 0.9709]) decreased the odds of achieving an A1C of  $< 9.0\%$  and  $< 8.0\%$ , respectively.

**CONCLUSION:** Multiple factors that influence A1C reduction among patients using high-dose insulin and uncontrolled type 2 diabetes mellitus were identified in this retrospective case-control study.

#### PL I-5

##### PATIENT'S PERCEPTION TO TELEMEDICINE SERVICE MANAGED BY CLINICAL PHARMACISTS DURING THE COVID-19 PANDEMIC

Luan G. Truong, Ogechi U., Blanca G., An N., Linda B., Harris Health System, Houston, TX.

**PURPOSE:** To evaluate patient satisfaction with ambulatory care clinical pharmacy services to meet or improve the patient care processes. The second purpose is to assess patient outcomes during that time, which includes collecting data from existing electronic medical records of patients managed by ambulatory care clinical pharmacy service at a single-center ambulatory clinic from March 2020 to March 2021 to determine not only if patients are satisfied with the telemedicine platform, but as well as their A1c reduction.

**METHODS:** Using data retrospectively collected from the institution's electronic records, patients who

meet the eligibility criteria will receive a telephone call for their consent to participate in the study before the survey is administered. Patients aged 18 years of age or older were included if they were seen and followed in-office and virtually at a single-center ambulatory clinic from March 2020 to March 2021. A validated survey comprised of 12 questions will be used to assess patient's satisfaction via telephone calls. Patients will rate their satisfaction through a Likert scale, ranging from strongly disagree (1) to strongly agree (5). The following elements will be examined in the survey: Patient's satisfaction with telemedicine platform, patient's satisfaction with ambulatory care clinical pharmacy service, patient perception of care with telemedicine platform, and factors that may influence their decisions in choosing telemedicine.

**RESULTS:** Research in Progress

**CONCLUSION:** Research in Progress

## I-B: Ambulatory Care

#### PL I-6

##### ASSESSING THE EFFECT OF CLINIC- EMBEDDED PHARMACISTS ON MEDICATION ACCESS TO FREE SPECIALTY DRUGS

Emily R. Pena, Tim Reynolds, Paul J. Godley, Savannah D. Parker, Baylor Health Enterprises, Temple, TX

**PURPOSE:** Since January 2020, Baylor Scott & White Health has partnered with 27 specialty clinics to embed pharmacists into the clinical workflow to improve medication access to specialty drugs and enhance continuity of care. These pharmacists are conveniently positioned to ease both patient and provider burdens related to the initiation and maintenance of necessary treatments, including medication access restrictions and financial limitations. As specialty medications are often associated with barriers to access, such as prior authorization requirements or significant patient cost-sharing, the purpose of this study is to assess the effect of clinic-embedded pharmacists on medication access to free specialty drug.

**METHODS:** A retrospective chart review using the electronic medical record system, medical and pharmacy claims data, and clinic documentation was performed on patients of Baylor Scott & White Rheumatology Clinic – Temple. Patients were

included if they were > 18 years old, prescribed a specialty medication within any of 2 different timeframes between January 1, 2019 – October 31, 2021, and were uninsured or had Medicare coverage when prescribed an eligible specialty medication. Patient encounters were separated into two groups based on time of therapy initiation, with one group including encounters with an eligible specialty medication order prior to initiation of clinic-embedded pharmacist program and the other group including encounters with an eligible specialty medication order after initiation of the program. Metrics collected included age, gender, diagnosis, insurance coverage, current specialty medication use and specialty medication history, pharmacy copays and coinsurance, and free drug applications. Endpoints of interest included the proportion of patients with approved free drug applications, estimated patient cost savings, and primary medication nonadherence rate.

**RESULTS:** Pending final data analysis.

**CONCLUSION:** Pending final data analysis.

**PL I-7  
EVALUATING THE EFFECTIVENESS OF  
COMMUNICATION MODES TO REPORT  
WAITER STATUS OF PATIENTS FOLLOWING  
KIDNEY TRANSPLANT CLINIC VISIT TO  
OUTPATIENT PHARMACY**

Amber Lloyd, Cherell Williams, Lyndsay Cole, Ann Kataria, Baylor Health Enterprise Dallas TX

**PURPOSE:** Timely medications acquisition following a clinic visit plays an integral role in patient satisfaction and medication adherence. Several barriers can delay the process preceding prescription pick up in a community pharmacy. A lack of communication methods between an institutional post-transplant team and the onsite outpatient pharmacy created prescription delays for patients waiting to pick up their medications following appointments. A clinical pharmacist was embedded into the transplant clinic workflow and established a communication process regarding pharmacy waiters with the outpatient pharmacy. The main objective is to identify the impact of this process on waiter turnaround time.

**METHODS:** This was a retrospective, process, and quality improvement study. Data used was retrospectively collected for 250 kidney transplant patients during the period of 06/01/2021 to 12/31/2021

which filled their medications following the clinic visit at the outpatient pharmacy. The prescriptions were entered as waiters into the dispensing software by a pharmacist or pharmacy technician. Each prescription was entered as a waiter and followed each step in the verification process which included data entry, insurance verification, pre-verification, dispensing, verification. The prescriptions were estimated to have a 30-minute turn around. System messaging was used to collect date and time of message from clinical pharmacist about waiter status. Pharmacy dispensing software was used to collect patient name, date of birth, time of receipt of prescription, medication, number of waiters prescriptions and time of receipt, data entry, verification and sold status of the prescription. Primary outcome includes time from clinical pharmacist message to prescription verified status and time from verified status to patient pick up time. Secondary outcomes include the identification of workflow improvement.

**RESULTS:** Data collection and analysis currently in progress.

**CONCLUSION:** Conclusion to be presented following the completion of data analysis.

**PL I-8  
MISCONCEPTIONS AND BELIEFS RELATED  
TO DIABETES CARE AND THEIR EFFECT ON  
GLYCATED HEMOGLOBIN VALUES IN  
PATIENTS WITH TYPE 2 DIABETES.**

Heba Almasri, Ryan Popp, Harris Health System, Houston, TX

**BACKGROUND:** Despite recent therapeutic advances, diabetes mellitus remains the seventh leading cause of death in the United States and in 2020 was estimated to affect 24.2 million people of all ages (approximately 10.5% of the US population). In Harris County, Texas, diabetes mellitus is the sixth leading cause of death. It is widely accepted that many patients at Harris Health System do not have proficient health literacy and as a result, may believe certain things about their diabetes that interfere with their care.

**PURPOSE:** The aim of this study will be to determine which misunderstandings are present regarding diabetes amongst Harris Health System patients. It will compare A1c values for patients who believe each misconception to patients who do not believe them in order to establish which beliefs are associated with a poorer A1c outcome. The primary outcome of the

study will be an odds ratio of factors that are associated with a glycated hemoglobin greater than or equal to 9.0% versus less than 9.0%.

**METHODS:** A 12 item survey consisting of true/false statements was administered to patients who were being seen by the clinical pharmacy specialist at Aldine Health Center. The survey was available in English and Spanish and was designed to collect information on current health care misconceptions and beliefs. Patients were eligible for inclusion if they presented for a visit for the management of type 2 diabetes mellitus between November 2021 to January 2022. In addition to the survey items, additional information collected for each study subject included both demographic and clinical data relevant to the study.

**RESULTS:** Analysis of data will be completed by April 2022.

**CONCLUSION:** Conclusion will be presented upon completion of data analysis.

#### PL I-9

#### **EFFECTIVENESS OF SGLT2 INHIBITORS COMPARED WITH GLP-1 RECEPTOR AGONISTS IN REDUCING CARDIOVASCULAR EVENTS IN THE MILITARY HEALTH SYSTEM: A REAL-WORLD EVIDENCE STUDY**

Giao Phung

**PURPOSE:** The objective of this research study is to evaluate the difference in major adverse cardiovascular events (MACE) outcomes following the initiation of Sodium-Glucose Cotransporter 2 Inhibitors (SGLT2i) when compared to Glucagon-Like Peptide-1 Receptor Agonists (GLP1RAs) as a second line agent after metformin in the Military Health System (MHS). The outcomes to be analyzed include non-fatal myocardial infarction (MI), non-fatal stroke, and hospitalizations.

**METHODS:** This research study is a retrospective database analysis of existing claims. A claim for a SGLT2i or GLP1RA will be identified during a 12 month period from October 1, 2016 to September 30, 2017, with outcomes collected during a three year follow up period. Data collection will include non-fatal MI, non-fatal stroke, hospitalizations, comorbidities, concomitant medications, and demographics. Diagnosis codes and/or the Adapted

Diabetes Complications Severity Index (aDCSI) will be used to match SGLT2i patients to similar GLP1RA patients using propensity score matching, depending on which method yields a better propensity match. Survival analysis for the first event of non-fatal MI, non-fatal stroke, or hospitalization will be performed using a Cox proportional hazards regression model.

**RESULTS:** Data collection and analysis of results are pending.

**CONCLUSIONS:** Study results may be useful to the DoD Pharmacy and Therapeutics Committee for formulary decision-making and may be generalizable beyond the DoD population.

## II-A: Critical Care

### PL II-1

#### **TIMING OF ANTICOAGULATION FOR VENOUS THROMBOEMBOLISM AFTER RECENT TRAUMATIC OR VASCULAR BRAIN INJURY**

Carlton Menchaca, Aaron M. Gusdon, Sophie Samuel, Memorial Hermann Texas Medical Center, Houston, TX

**PURPOSE:** Currently, there is no consensus guideline for initiating anticoagulation in patients with a traumatic or vascular brain injury. Initiating anticoagulation for management of venous thromboembolism (VTE) can vary significantly from 72 hours to 30 weeks due to the risk of recurrent bleeding. However, early treatment can prevent progression to symptomatic or fatal pulmonary embolism (PE). The purpose of this study is to compare clinical outcomes in this patient population with early (< 72 hours) versus late ( $\geq 72$  hours) initiation of therapeutic anticoagulation for VTE.

**METHODS:** This retrospective, observational, cohort study included patients admitted to the neurosciences intensive care unit (NSICU) at Memorial Hermann Hospital – Texas Medical Center between June 2015 and June 2019. We included patients over the age of 18 with a diagnosis of either deep vein thrombosis (DVT) or PE. The admitting diagnoses for inclusion were acute ischemic stroke, intracerebral hemorrhage, subarachnoid hemorrhage, or traumatic brain injury. Patients with a diagnosis of spinal cord injury, status epilepticus, or any other neurological disorder were excluded. Use of anticoagulation prior to admission or diagnosis with VTE on admission were additional

exclusion criteria. Clinical data were collected by reviewing the electronic medical record. The primary end point was clinical outcome defined by Modified Rankin Score (mRS). Secondary outcomes measured were all-cause mortality, length of stay, and reasons for early interruption of anticoagulation use.

**RESULTS:** A total of 11,688 patients admitted to the NSICU were identified. We excluded 10,518 patients because a venous doppler ultrasound or computed tomography angiography to detect VTE was not completed. Of the remaining 1,170, roughly 380 patients had VTE but only 103 patients were included in the final analysis. Therapeutic anticoagulation was started early in 76 (74%) patients compared to late initiation in 27 (26%) patients. No significant differences in baseline characteristics were noted between the two groups, but the prevalence of PE was significantly higher in the early anticoagulation group (33% vs 11%;  $p=0.042$ ). A dichotomous outcome of mRS score 0-3 versus 4-6 was similar in patients who received early anticoagulation versus those who received it later. All-cause mortality was the same between the two groups. Reasons for early interruption of therapeutic anticoagulation were not significant in any of the treatment groups and a non-significant difference in average hospital length of stay was observed. (24 days in the early vs 20 days in late group;  $p=0.761$ )

**CONCLUSION:** In this small sample size study, early initiation of anticoagulation for management of VTE in-patient with traumatic or vascular injury did not worsen clinical outcomes. Further studies are warranted to assess the benefit of early treatment.

## PL II-2

### EVALUATION OF PATIENT OUTCOMES ASSOCIATED WITH LACTATED RINGERS VS NORMAL SALINE IN PATIENTS PRESENTING WITH DIABETIC KETOACIDOSIS IN A MULTI-CENTER HEALTH-SYSTEM

RR Molleti, KJ Mercer, M Tran, R Chilappa, J Madhavaram

**BACKGROUND:** In addition to insulin therapy, glucose monitoring, and electrolyte maintenance, fluid administration is essential for treatment of diabetic ketoacidosis (DKA). According to the American Diabetes Association (ADA), normal saline (NS) is the fluid of choice for patients with DKA. However, there is controversy surrounding the choice of fluid.

**OBJECTIVE:** The purpose of this study is to compare the outcomes of patients receiving treatment for DKA with lactated ringers (LR) vs NS.

**METHODS:** This is a multi-center, observational, retrospective, cohort study of patients with DKA receiving LR or NS presenting to community emergency departments within a health-system. Included patients were treated with the DKA order set. Data was collected from electronic health records from January to August 2021 for the LR cohort and January to August 2020 for the NS cohort. The primary outcome was time to resolution of DKA per ADA guidelines.

**RESULTS:** This study examined 892 patients with orders from the DKA order set. Of the 892 patients, 530 (59.4%) were excluded. Among the LR and NS cohorts, there were 136 (15.2%) and 226 (25.3%) patients, respectively. Time to resolution of DKA was reduced in the LR cohort (14.4 hours) vs the NS cohort (17.2 hours) ( $p = 0.02$ ). When analyzed by site, there was no statistical difference in time to DKA resolution.

**CONCLUSION:** Fluid selection in DKA patients may impact time to resolution of acidemia. In this multicenter study of patients with DKA, there was a statistically significant reduction of time to resolution of DKA in the LR cohort.

**DISCLOSURES:** RR Molleti has nothing to disclose, KJ Mercer has nothing to disclose, M Tran has nothing to disclose, R Chilappa has nothing to disclose, and J Madhavaram has nothing to disclose

## PL II-3

### AN EVALUATION OF REPEAT RESPIRATORY CULTURES IN THE SHOCK TRAUMA INTENSIVE CARE UNIT.

Jonny Nguyen, Brad Domonoske, Memorial Hermann-Texas Medical Center, Houston, TX.

**PURPOSE:** Ventilator-associated pneumonia (VAP) is a common critical illness that presents in patients in the intensive care unit (ICU). A gold standard of diagnosing VAP has not been established due to the nonspecific nature of frequent tests used during the diagnostic process. The use of these diagnostic tools has not shown great specificity or sensitivity. The use of repeat respiratory culture is commonly used with no known benefit or likelihood to diagnosis VAP, when the initial culture is negative. There currently is no

guidance regarding repeat respiratory cultures in the setting of clinical decline. The objective of this project is to evaluate the necessity of repeat respiratory cultures in the shock trauma intensive care unit (STICU) at Memorial Herman Hospital-Texas Medical center (MHTMC).

**METHODS:** This was a single center retrospective cohort research project. Baseline data was collected through a retrospective chart review of previous STICU patients who are intubated with suspected VAP. Clinical data was collected from January 2003 through August 2021. Patients were excluded if they were <18 years of age, pregnant, non-trauma patients, received antibiotics prior to initial bronchoalveolar lavage (BAL), and also have a definitive diagnosed infection. Using data collected retrospectively from the institution's electronic records, we assessed repeat respiratory culture data and clinical significance for VAP. Findings observed during the retrospective review were analyzed and results discussed in collaboration with department physicians and to discuss appropriateness of repeat respiratory cultures.

**RESULTS:** A total of 89 patients were screened for baseline data collection and 35 met inclusion criteria with more patients being included pending data analysis. Final results to be presented following completion of data analysis.

**CONCLUSION:** Conclusions to be presented following completion of data analysis.

**PL II-4  
VASOPRESSIN INFUSION DURATION  
BEFORE AND AFTER ANGIOTENSIN II  
FORMULARY INCLUSION IN SEPTIC SHOCK  
PATIENTS ADMITTED TO THE INTENSIVE  
CARE UNIT.**

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**PURPOSE:** Vasopressin is primarily used as a second line vasopressor in the treatment of septic shock to improve mean arterial pressure (MAP), reduce catecholamine requirements, and thereby decrease many dose-dependent side effects such as cardiac dysrhythmias and peripheral ischemia. The affiliated health system's formulary committee added angiotensin II to the list of potential third- and fourth-line vasopressors used in the treatment of septic shock in August 2018. The purpose of this study is to

compare vasopressin infusion duration before and after angiotensin II addition to the affiliate hospital's formulary and evaluate vasopressin's impact on clinical efficacy, safety, and cost effectiveness.

**METHODS:** This retrospective study has been approved by the Institutional Review Board, and all protected health information has been recorded without patient identifiers to maintain confidentiality. This study includes adult patients within an affiliated health system admitted to the intensive care unit with septic shock who received at least one infusion of vasopressin concurrently with norepinephrine. Vasopressin infusion duration before and after the addition of angiotensin II to the hospital formulary will be compared for patients admitted between January 1, 2017, and December 31, 2019. Markers for population comparison will include patient demographics, MAP at admission to the intensive care unit (ICU) and upon vasopressin addition, duration of cumulative vasopressor use from admission to discharge, ICU length of stay, markers of sepsis, hours of mechanical circulatory support, all-cause mortality, and other associated laboratory values. This data will help determine the efficacy, safety, and cost effectiveness of vasopressin.

**RESULTS:** In progress.

**CONCLUSION:** In progress.

**PL II-5  
INCIDENCE OF ACUTE KIDNEY INJURY IN  
PATIENTS RECEIVING  
HYPEROSMOTHERAPY: A COMPARISON OF  
MANNITOL VERSUS HYPERTONIC SALINE**

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**INTRODUCTION:** Hyperosmolar therapy is one of the common treatment modalities for elevated intracranial pressure (ICP) in critically ill patients. Increases in ICP have consistently been identified as a predictor of poor neurologic outcomes. The most commonly used hyperosmolar agents include hypertonic saline and mannitol. Previous studies have shown that both mannitol and hypertonic saline can cause acute kidney injury (AKI) which has been associated with poor outcomes in critically ill patients including increased mortality. There is limited data comparing the incidence of AKI between mannitol versus hypertonic saline and it is unclear if one is more likely to cause AKI over the other.

**PURPOSE:** To establish and compare the incidence of AKI in patients receiving mannitol versus those receiving hypertonic saline.

**METHODS:** This is a retrospective electronic chart review of adult patients who were admitted to the JPS Intensive Care Unit (ICU) and received either scheduled mannitol or a continuous infusion of hypertonic saline for a minimum of 24 hours. Exclusion criteria included patients with end stage renal disease, AKI prior to initiation of hyperosmolar medication, and receiving both mannitol and hypertonic saline during admission. The primary outcome is incidence of AKI defined using the Kidney Disease: Improving Global Outcomes (KDIGO) criteria. Secondary outcomes include incidence of renal replacement therapy, total dose and days of therapy, time to AKI, survival to ICU discharge, and survival to hospital discharge.

**RESULTS:** Data collection in process

**CONCLUSION:** To be determined

## II-B: Critical Care

### PL II-6

#### LOOP DIURETIC ESCALATION VERSUS THIAZIDE COMBINATION THERAPY FOR VOLUME MANAGEMENT IN ADULT INTENSIVE CARE UNIT PATIENTS WITH ACUTE RESPIRATORY DISTRESS SYNDROME.

Amanda Gee, Emily Hodge, Molly Curran, Evan Peterson, Ascension Seton, Austin, Texas.

**PURPOSE:** Evidence is lacking regarding the appropriate timing and regimen for de-resuscitation in acute respiratory distress syndrome (ARDS). Despite the suggested benefit of a negative fluid balance in ARDS, the optimal diuretic strategy remains unknown and is largely up to provider discretion. Previous studies in the acute decompensated heart failure population have demonstrated adjunctive thiazide diuresis to be safe and effective. The purpose of this study is to evaluate the effectiveness and safety of thiazide and loop diuretic combination therapy versus loop diuretic escalation for volume management in ARDS patients with loop diuretic resistance.

**METHODS:** This multicenter, retrospective, cohort study was conducted in hospitalized patients diagnosed with ARDS within seven days of admission

between December 1, 2013 and November 1, 2021. Adult patients with loop diuretic resistance, defined as  $\geq 160$  mg/day intravenous furosemide equivalents per day at a stable dose for  $\geq 12$  hours, were included if they had loop diuretic escalation or addition of a thiazide diuretic to achieve volume goals. Exclusion criteria included outpatient diuretic therapy, end stage renal or liver disease, burns, extracorporeal membrane oxygenation, and diabetes insipidus. Treatment groups included loop diuretic escalation versus thiazide combination therapy. The primary endpoint was the number of ventilator-free days at 28-days. The secondary endpoints included time to liberation from mechanical ventilation, net cumulative fluid balance and total urine output (UOP) at 12 and 24 hours, length of stay, and in-hospital mortality. Safety endpoints included change in serum creatinine (SCr), acute kidney injury (AKI), hypotension, hypokalemia, hypernatremia, and metabolic alkalosis. Subgroup analyses were performed to assess outcomes based on coronavirus disease 2019 status and thiazide diuretic, either intravenous chlorothiazide or enteral metolazone. With a two-sided type I error of 0.05 and power of 80% to identify a difference in four days free of mechanical ventilation between groups, a sample size of 158 patients was needed.

**RESULTS:** A total of 91 patients met criteria for study inclusion. There were 63 patients in the loop diuretic escalation group and 28 patients in the adjunctive thiazide diuretic group. The thiazide group had a significantly higher mean baseline SCr versus the loop escalation group (1.3 vs. 0.9 mg/dL) and a higher median baseline Sequential Organ Failure Assessment score (10 vs. 9 points). Median ventilator-free days at 28 days post index dose administration were 0 (0, 19) days in the loop escalation group and 0 (0, 0) days in the thiazide group;  $p = 0.20$ . Time to liberation from mechanical ventilation was  $9.4 \pm 1.9$  days in the loop escalation group and  $5.8 \pm 0.9$  days in the thiazide group;  $p = 0.26$ . Total UOP at 12 hours was  $1729.4 \pm 122.1$  mL in the loop escalation group and  $2369.6 \pm 314.9$  mL in the thiazide group;  $p = 0.02$ . There was no significant difference in net cumulative fluid balance at 12 and 24 hours or total UOP at 24 hours. In-hospital mortality was lower in the loop escalation group (38.1% versus 67.9%;  $p < 0.01$ ) as were rates of hypokalemia (11.1% vs. 39.3%;  $p < 0.01$ ). There were no differences between groups in the following safety outcomes: change in SCr, AKI, hypotension, hypernatremia, and metabolic alkalosis.

**CONCLUSION:** Loop diuretic escalation as compared with thiazide combination therapy has no significant difference in the number of ventilator-free days at 28 days in patients with ARDS.

#### PL II-7

##### **DILTIAZEM VERSUS METOPROLOL FOR ATRIAL FIBRILLATION WITH RAPID VENTRICULAR RESPONSE IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION**

Tyler Brouse, Vivek Kataria, Yosafe Wakwaya, Joon Moon, Klayton Ryman, Baylor University Medical Center, Dallas, Texas.

**PURPOSE:** Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia in adults with its global prevalence increasing 3-fold in the last 50 years. When coupled with rapid ventricular response (RVR), patients are at an increased risk of cardiac decompensation. Guideline recommended first-line treatment is acute ventricular rate control with beta-blockers and calcium-channel blockers. Despite recent guidelines recommending against the use of non-dihydropyridine calcium-channel blockers in patients with heart failure with reduced ejection fraction (HFrEF), they continue to be utilized for acute atrial fibrillation with rapid ventricular response in this population. With the paucity of literature supporting the use of diltiazem for acute management of AF with RVR in patients with HFrEF both in the emergency department and admitted patient settings, the purpose of this trial is to assess the effectiveness and safety of diltiazem versus metoprolol when used for this indication.

**METHODS:** This single-center, retrospective chart review will assess patients presenting to the emergency department or admitted to the hospital from September 2019 to September 2021 in AF with RVR who received either diltiazem or metoprolol as a first-line treatment. The primary objective of the study is to evaluate achievement of rate control within 30 minutes. Secondary endpoints include treatment failure, sustained rate control, safety, acute decompensated heart failure admission within 28 days, and incidence of diltiazem discharge prescriptions. Appropriate parametric tests or nonparametric equivalent tests will be used to evaluate outcomes.

**RESULTS:** Pending.

**CONCLUSION:** Pending.

#### PL II-8

##### **INCIDENCE OF AND RISK-FACTORS FOR LATE-ONSET ORGANISMS IN EARLY-ONSET PNEUMONIA IN VENTILATED TRAUMA PATIENTS.**

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**PURPOSE:** Mechanically ventilated trauma patients are at high risk for ventilator associated pneumonia (VAP). The risk of developing VAP is multifactorial and is associated with significant morbidity and mortality. Current literature defines risk factors for the development of VAP in trauma patients, but no studies to date have evaluated the risk factors for late-onset organisms in the setting of early-onset pneumonia. Identifying these risk factors can help guide initial antimicrobial therapy. The purpose of this study is to describe the incidence of and investigate the risk factors for late-onset organisms in early-onset pneumonia in mechanically ventilated trauma patients.

**METHODS:** This is a retrospective, single-center cohort study that will evaluate the incidence of and risk factors for late-onset organisms in early-onset pneumonia in mechanically ventilated trauma patients between September 2019 and December 2020. Mechanically ventilated trauma patients that are 18 years of age or older with a respiratory culture collected on hospital days 0-5 for suspected VAP will be included in this study. Patients will be excluded if they are immunosuppressed, have a documented Methicillin-resistant *Staphylococcus aureus* or *Pseudomonas* infection in the past year, received intravenous antimicrobial therapy in the past 90 days, or if they were treated for longer than 24 hours at an outside facility prior to admission to this facility. The following data will be collected: patient demographics, comorbidities, home use of a H2 receptor antagonist or proton pump inhibitor, mechanism of trauma, sustained injuries, injury severity score, witnessed or suspected aspiration, intubation location, Glasgow coma score, mortality and hospital length of stay derived from the Acute Physiology and Chronic Health Evaluation IV score, admission and discharge dates, intensive care unit length of stay, duration of mechanical ventilation, use of continuous paralytics, microbiology culture data, and antimicrobial therapy regimens. All data will be analyzed with appropriate statistical tests and methods with a 95% confidence interval and alpha of 0.05.

**RESULTS:** Pending data analysis, to be presented.

**CONCLUSION:** Pending, to be presented.

#### PL II-9

##### **ADJUNCTIVE MIDODRINE TO FACILITATE WEANING OF IV VASOPRESSOR AGENTS IN CRITICALLY ILL ADULT PATIENTS.**

Khalil Ford, Laura Blackburn, Hannah Ehrenfeld, HCA Houston Healthcare Clear Lake, Webster, TX.

**PURPOSE:** IV vasopressors are medications used to increase blood pressure in patients with inadequate blood perfusion. They are associated with adverse effects such as dysrhythmias, extravasation, mesenteric and peripheral ischemia. Midodrine is an oral alpha 1 adrenergic agonist with a relatively benign adverse effect profile and has been utilized to facilitate discontinuation of IV vasopressors with conflicting results published in regards to beneficial effects on IV vasopressor duration. The aim of this study was to investigate whether addition of midodrine to adult patients receiving IV vasopressor agents decreases the duration of IV vasopressor use.

**METHODS:** This was a single-center, retrospective, observational, IRB-exempt study comparing the duration of IV vasopressors in critically ill adult patients who received midodrine versus those who did not. Study subjects were adult patients who were admitted to a critical care unit from April 2020 to June 2021. Patients were excluded if they expired within 24 hours of admission, used midodrine prior to hospital admission, were pregnant, or used IV vasopressors for purposes other than increasing mean arterial pressure in the setting of shock. The primary outcome was total duration of IV vasopressors. Secondary outcomes included ICU length of stay, reinstitution of IV vasopressors, and ICU readmission for vasopressor support.

**RESULTS:** Patients who received adjunctive midodrine (n = 100), compared to those who received IV vasopressors alone (n = 100), had significantly lower receipt of 2 or more vasopressor agents (61% vs 80%; P = 0.005), greater receipt of renal replacement therapy (55% vs 35%; P = 0.007), and greater rates of septic shock (81% vs 62%; P = 0.005) at baseline. Critically ill adults who received adjunctive midodrine in addition to IV vasopressors had a significantly longer median total duration of IV vasopressors versus patients who received IV vasopressors alone (7.0 vs 4.5 days; P < 0.001). Patients who received adjunctive

midodrine also had a significantly longer median ICU length of stay (11.4 vs 7.8 days; P = 0.02) and a greater rate of ICU readmission for vasopressor support (15% vs 4%; P = 0.01). No significant difference was observed for reinstitution of IV vasopressors (27% vs 15%; P = 0.06) or incidence of bradycardia (28% vs 39%; P = 0.13).

**CONCLUSION:** Adjunctive midodrine was associated with a significantly longer total duration of IV vasopressors, albeit with notable confounding variables and limitations. Further investigation is warranted to determine if a standardized time point for administration of adjunctive midodrine provides clinical benefit.

### III-A: Admin/Mgmt/Pain

#### PL III-1

##### **IMPACT OF UNIT-BASED PHARMACY TECHNICIANS AT A TERTIARY ACADEMIC MEDICAL CENTER**

Niha Zafar, Engie Attia, David Putney, Amanda Beck, Alex C. Varkey, Kevin W. Garey, Diva Varkey; Houston Methodist Hospital, Houston, TX

**PURPOSE:** The expansion of pharmacy technician roles is essential to provide an avenue for additional patient care support services. As pharmacist roles continue to shift away from traditional dispensing responsibilities, pharmacy technicians must adapt to meet the needs of progressive pharmacy practice. Unit-based pharmacy technicians have been described in literature as one type of advanced role to support patient care services through a variety of operational and clinical practice models. However, there is a need for more optimal design and evaluation of unit-based pharmacy technician practice models that support transitions of care and the discharge process. The presence of a pharmacy technician on the unit may allow for clinical pharmacists to perform more cognitive direct patient care interventions through gained time. The purpose of this study was to assess the impact of unit-based pharmacy technicians on the quality and efficiency of provision of patient care.

**METHODS:** A quasi-experimental, single-center study was performed to evaluate the impact of a unit-based pharmacy technician pilot program at Houston Methodist Hospital. The intervention was the integration of two unit-based pharmacy technicians to provide patient care support services to four acute care

cardiology and neurology units. The timeframe of this research study encompassed a pre-intervention period from October 2020 to January 2021 and a post-intervention period from October 2021 to January 2022. The primary endpoint was a composite of clinical pharmacist efficacy, defined as the documented number of advanced clinical interventions, prior authorizations, discharge counseling, and discharge process support as a surrogate for the technicians' performance of time-consuming functions. Secondary endpoints included various operational and outcomes metrics, such as length of stay, 30-day readmission rates, patient satisfaction scores, utilization of bedside medication delivery, medication re-dispense rates, and missing dose requests for the pilot units.

**RESULTS:** A total of 2283 patients in the pre-intervention period and 2076 patients in the post-intervention period were included in the study. A nonsignificant increase in overall clinical pharmacist efficacy was observed with a composite of 0.31 in the pre-intervention period compared to 0.37 in the post intervention period (95% CI, -0.0002 to 0.121,  $p=0.059$ ). The 30-day readmission rate decreased from 9.68% in the pre-intervention period to 7.23% in the post-intervention period, which was a statistically significant reduction (95% CI, -6.598 to -1.291,  $p=0.005$ ). There was no significant difference in other operational or outcomes metrics evaluated in the study.

**CONCLUSION:** Unit-based pharmacy technicians contribute to improving efficacy of direct patient care activities performed by clinical pharmacists and may facilitate medication-related barriers in the discharge process to enhance transitions of care. Further studies are needed to validate the most optimal workflow and essential functions for unit-based pharmacy technicians based on the desired area of impact.

### PL III-2

#### **ASSESSMENT OF AN INTEGRATED CLINICAL SURVEILLANCE ALERT SYSTEM.**

Nathan Jones, David Putney, Engie Attia, Mobolaji Adeola, Matthew Wanat, Mabel Truong, Alex Varkey, Houston Methodist Hospital, Houston, TX

**PURPOSE:** To assess the changes in alert acknowledgement and intervention rate after integration of a clinical surveillance alert system with an electronic health record.

**METHODS:** This is a 60-day pre-post quasi-experimental study completed at a large academic medical center which assesses the utilization of eight alerts within a stand-alone clinical surveillance system before and after integration with the electronic health record. The primary outcome assessed is alert acknowledgement rate by clinical pharmacists.

**RESULTS:** 186 alerts were activated during the pre-assessment period and 257 alerts in the post-assessment period. Results will be described in higher detail including acknowledgement rate, alert accuracy, pharmacy consult rate, and pharmacy intervention related to alerts.

**CONCLUSION:** The use of clinical surveillance alerting systems can identify meaningful pharmacy led therapy interventions regardless of clinical pharmacy service model. Integration of such systems into the EHR improves their utilization and in our study was associated with a higher rate of alert identified therapy intervention.

### PL III-3

#### **IMPLEMENTATION OF A DIGITAL CONTENT-BASED PHARMACY TECHNICIAN TRAINING PROGRAM WITHIN AN INTEGRATED HEALTHCARE SYSTEM.**

Chinyere Onyirimba, Eric Gaines, Kirk Starr, Brittney Cox, Tammy Cohen, Baylor Scott & White Health, Dallas, TX.

**BACKGROUND:** The coronavirus disease 2019 (COVID-19) pandemic has resulted in major challenges for the healthcare system and placed additional strain on the workflow of both inpatient and outpatient pharmacies. "As the role of the pharmacist has evolved, the need for highly trained pharmacy technicians has grown. The pharmacy technician's expanded role in specialized areas of pharmacy practice has created new opportunities that require advanced training." Combined with the formal training program requirement of the Pharmacy Technician Certification Board (PTCB) needed to sit for the Pharmacy Technician Certification Exam (PTCE), the role and necessity of skilled pharmacy technicians has never been more critical. "Creation of an ASHP-ACPE-accredited pharmacy technician training program is a means of generating a viable pool of qualified candidates for hire." Baylor Scott & White Health (BSWH) began the development of a pharmacy technician training program in the Fall of 2019.

**PURPOSE:** To improve pharmacy technician recruitment and retention, supplement the workforce, and prepare trainees for a career as a certified pharmacy technician by implementing a digital content-based pharmacy technician training program.

**METHODS:** A team of pharmacists, pharmacy leaders, and Human Resources representatives will execute implementation of a digital content-based health-system pharmacy technician training program. BSWH began with vendor selection and partnered with a digital content provider. The content provider selected provides an enterprise subscription for an American Society of Health-System Pharmacists (ASHP) and Accreditation Council for Pharmacy Education (ACPE) accredited pharmacy technician training program. Candidates of the training program will undergo prescreening to assess Mathematics and English competency. Enrollment of candidates will be taken internally and externally to the institution, and once onboarded will be classified as 'pharmacy technician trainees' within the system. Candidates will complete 120 hours of didactic education, 50 hours of simulations, and 230 hours of experiential course work that will take place between outpatient and inpatient pharmacy settings. Successful implementation of the pharmacy technician training program will be evaluated based on Pharmacy Technician Certification Exam (PTCE) passing rates and pharmacy technician employee recruitment and retention.

**RESULTS:** Results are pending.

**CONCLUSION:** Conclusions are pending.

#### PL III-4

##### **IMPACT OF A MULTIMODAL PAIN MANAGEMENT ORDER-SET IN TOTAL HIP AND KNEE ARTHROPLASTY.**

Victoria J. Dadebo, Christine A. Pele, Janay Bailey, Kristen A. Staggers, Michael E. DeBailey VA Veterans Affairs Medical Center, Houston, TX.

**PURPOSE:** To assess the impact of a multimodal pain management order set in patients who underwent total hip arthroplasty (THA) or total knee arthroplasty (TKA) at the Michael E. DeBailey VA Medical Center (MEDVAMC) in Houston, Texas

**METHODS:** A retrospective chart review will assess opioid-naïve THA and TKA patients before (November 2019 – April 2020) and after (June 2020 – November 2020) order set implementation in May

2020. The study population will be generated via TheraDoc™ Clinical Surveillance Software System and data will be collected via Computerized Patient Record System (CPRS). Inclusion criteria consists of age  $\geq 18$  years and THA or TKA procedure at MEDVAMC during November 1, 2019 - November 30, 2020. Exclusion criteria includes opioid tolerant patients (defined as taking at least 60 mg oral morphine per day or equivalent for at least one week in the month before surgery), repeat THA/TKA or revision, conditions in which patients are unable to give a pain score (ex: older adults with advanced dementia, critically ill/unconscious patients, persons with intellectual disabilities, and patients at the end of life), and death during operation. Patient characteristics will be stratified by pre and post order set, and compared using the Independent t Test, Wilcoxon Rank Sum, Fisher's Exact or Chi-Square Test. A general linear mixed model will be used to determine if daily MMEs given over time differ between the pre and post order set patients. An independent t-test with a two sided significance level of 0.05 will provide >90% power to detect this difference in MMEs on postoperative day one between pre and post order set patients.

**RESULTS:** In progress.

**CONCLUSION:** In progress.

#### PL III-5

##### **ASSESSMENT OF ATTITUDES OF HEALTH PROFESSIONALS TOWARD NALOXONE USE**

Jonathan Lin, Helen Calmes, Heather Brooks, B. Lochlann McGee, Sonia Malhotra, University Medical Center New Orleans, New Orleans, LA.

**PURPOSE:** To assess the attitudes and behaviors of physicians, hospital pharmacists, registered nurses, and other healthcare professionals toward naloxone use. This survey will help the University Medical Center New Orleans Analgesic Management Stewardship team understand barriers and determine education needed to improve the care we provide.

**METHODS:** A survey was conducted containing seventeen questions: two with respect to provider type and practice setting, followed by fifteen qualitative questions to be answered in a Likert scale format with options ranging from strongly disagree to strongly agree.

**RESULTS:** The total number of participants in the survey was 151. Physicians accounted for the majority (n=76, 50.3%), followed by registered nurses (n=36, 23.8%) and then pharmacists (n=17, 11.3%). Respondents primarily practiced in an inpatient medicine service (n=78, 51.7%). When evaluating the impact naloxone has on patients suffering from opioid use disorder (OUD), most participants acknowledged that naloxone has an important part in treatment (n=135, 89.4%) and has a positive impact on these patients (n=129, 85.4%). Concerning inappropriate naloxone use, there were a minority of participants (n=13, 8.6%) who at least agreed that OUD patients would not use naloxone appropriately, with 38 (25.2%) participants remaining neutral. Furthermore, this response more than doubled (n=29, 19.2%) for those who at least agreed that naloxone would only increase opioid use and risky behavior. While a majority felt comfortable educating their patients on naloxone use (n=103, 68.2%), only about half of total respondents (n=79, 52.3%) stated that they've received training on naloxone use for OUD patients. Just over half of the participants of this survey (n=77, 51%) reported being aware of the standing order status of naloxone in Louisiana.

**CONCLUSIONS:** Based on the responses, there is a consensus that naloxone is effective and an important part of treatment for OUD patients. However, barriers exist where participants may not have received training or may not be comfortable educating patients on naloxone. In addition, there is concern among participants that patients may not use naloxone appropriately.

### III-B: Admin/Mgmt/Informatics

#### PL III-6

#### OPTIMIZATION OF LBJ INFUSION CENTER AND SPECIALTY CLINICS PATIENT HIGH-COST MEDICATION PROCUREMENT, ADMINISTRATION, PATIENT APPOINTMENTS AND SCHEDULING PROCESSES

Eileell Alin Nguyen, Oliver Egwim, Ogechukwu Amaka, Harris Health System, Houston, TX

**PURPOSE:** In the last decade, the cost of cancer care has increased by 27%. Approximately 76% of all Harris Health System patients qualify for financial assistance programs and about 24% of patients are insured. Currently, we are unable to capture all

qualified patients within the patient medication assistance program, which ensures free drug replacement and third-party payor reimbursement. This can have a significant impact on treatment plan adherence/compliance, patient overall satisfaction, as well as unnecessary facility resource utilization and an increase in medication cost. The objective of this project is to bridge the gaps by synchronizing medication administration appointments with drug procurement timeline.

**METHODS:** Phase I intervention was implemented in August 2021 in the ophthalmology clinic at Lyndon B. Johnson Hospital. This multi-part intervention involved engagement of key stakeholders to understand the intricacies of the Patient Medication Assistance Program (PMAP), introduction of manual bulk charges to allow for charge capture to facilitate downstream workflows, and pharmacist order entry to enable documentation of medication administration in the patient's medical record. The Phase I intervention showed a great impact with an average of 30% more drug recovery compared to any other month. Phase II implementation is currently in process and consists of expansion to other specialty clinics and the infusion center at LBJ Hospital to achieve similar results. Data to be collected include information about patient's insurance, prior authorization approvals, PMAP eligibility as well as drug expenditures and PMAP drug recovery. Specific aim of this project is to achieve a 10% reduction in high-cost medication expenses for the ophthalmology clinic.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

#### PL III-7

#### ASSESSING THE IMPACT OF A UNIT-BASED CLINICAL PHARMACIST ON ANTIMICROBIAL USE IN A LEVEL I TRAUMA CENTER – A PILOT STUDY

Pooja Shah, Goldina Erowele, Kevin Garey, Divya Varkey, Harris Health System, Houston, TX

**PURPOSE:** Often, Pharmacists have an opportunity to improve quality, enhance patient's safety, and work side by side with key members of the primary patient care team. Studies show that optimum medication use is demonstrated in only 4-21% of patients. Greater pharmacist involvement has shown to lead to fewer re-hospitalizations, lower healthcare costs, and better

adherence to evidence-based consensus guidelines and better outcomes. Harris Health System launched its antimicrobial stewardship program, through coordinated efforts of infectious disease team, internal medicine, critical care medicine, surgery, hematology/oncology, emergency medicine, microbiology/pathology, nursing, pharmacy, and infection control/epidemiology. It is the goal of the antimicrobial stewardship program to optimize utilization of antimicrobial agents in order to realize improved patient outcomes, a positive effect on antimicrobial resistance, and an economic benefit. While there is antimicrobial stewardship program in place, it is a consult-based service and the opportunity remains to reach additional patients. The pilot program of unit-based pharmacist would ensure a clinical pharmacist building a closer relationship with the antimicrobial stewardship team to improve patient outcomes such as using the right agent, at the correct dose, for the appropriate duration in order to cure or prevent infection, while minimizing toxicity and emergence of resistance.

**METHODS:** Current state at the level 1 trauma center Ben Taub Hospital, involves all pharmacists within the central pharmacy practicing all duties centralized in the inpatient pharmacy and primarily focusing on distributive services. Bringing the pharmacist closer to the bedsides will enable them to practice at the top of their licenses with an even distribution of clinical and distributive services. Beginning on September 27th, 2021, decentralized pharmacist will be piloted at Ben Taub Hospital on three internal medicine units where they will have the opportunity to make quality interventions, work closely with the primary patient care team and place patient care as a priority on the journey of becoming a high reliability organization. While bringing pharmacists on the unit will impact many patient outcomes, this study will focus on antimicrobial use as increasing need for antimicrobial stewardship is at the forefront of clinical pharmacy practice. This study is a prospective, single center study. Data will be collected for a 6-week period pre- and post- implementation (pre: July - August 2021 and post: September - December 2021).

The primary outcome of the impact of Unit Based Pharmacist will be on reduction in cost by the change of antibiotics from IV to PO within 3 days and secondary endpoint of days of therapy by de-escalation of antimicrobial use within 48 hours of lab results.

**Results & CONCLUSION:** Currently in progress and will be presented at the meeting

**PL III-8  
OPTIMIZING TRANSITION OF CARE  
PHARMACY SERVICES BY EVALUATING  
MEDICATION-RELATED READMISSION  
RISK FACTORS WITHIN THE HEART  
FAILURE POPULATION.**

Keyana Scott, Thomas Roduta, Michael Shih, Mohamed Hersi Memorial Hermann Hospital System, Houston, Texas.

**BACKGROUND:** Heart failure (HF) is the leading cause of hospitalization amongst patients 65 years of age and older and represents a significant clinical and economic burden. Previous studies have sought to identify risk factors associated with readmissions in HF patients. While many studies have identified risk factors for medication related hospital admissions and readmissions, there is limited data available on which of these medication related risk factors present most frequently in high risk patients such as the HF population. A retrospective chart review of heart failure patients readmitted within a cardiology unit was conducted to determine medication-related risk factors within the HF patient population that can and should be prioritized for intervention by transitions of care pharmacists.

**PURPOSE:** The purpose of this study is to determine medication-related risk factors within the HF patient population that should be prioritized for intervention. This will serve as the foundation for a more streamlined approach to transitions of care pharmacy services, allowing pharmacists to more readily identify and conduct necessary interventions within the HF population.

**METHODS:** Patients with heart failure identified by diagnosis-related group (DRG) admitted to the inpatient cardiology unit of Memorial Hermann Memorial City Medical Center between January 1, 2019 to December 31st 2019 were included in this study. Data was retrospectively analyzed based on patient information from the electronic medical record (EMR). Data points analyzed included patient demographics, date of initial admission, date to first readmission and medication-related readmission risk factors including (number of medications at initial discharge, number of comorbidities, documentation of discharge review, eGFR during initial admission,

presence of high-risk medications at discharge, and length of stay at initial admission).

**RESULTS:** Pending completion of data analysis.

**CONCLUSION:** Pending completion of data analysis

### PL III-9

#### **Evaluation of a Fluticasone/Salmeterol Dual Inhaler Conversion Process at Sites Within the Veterans Affairs (VA) Heart of Texas Health Care Network**

Jonathan Ly Tran, PharmD, VA Heart of Texas Health Care Network (VISN 17), Pharmacy Benefits Management

**BACKGROUND:** The Department of Veteran Affairs (VA) switched their preferred inhaled corticosteroid/long-acting beta-agonist (ICS/LABA) combo inhaler from budesonide/formoterol (Symbicort) to fluticasone propionate/salmeterol (Wixela) on August 1, 2021. Due to the large number of Veterans that currently obtain their ICS/LABA inhalers from the VA for chronic obstructive pulmonary disease (COPD) and asthma therapy, local Pharmacy & Therapeutics committees worked alongside subject matter experts to comply with the VA National Formulary changes and facilitate a safe conversion. Their collaboration developed guidance at local sites that addressed many critical aspects of the conversion process. These included establishing ICS/LABA dosing equivalency, determining high risk groups ineligible for conversion, and identifying patients without a short-acting beta-agonists (SABA).

To assist each facility, the pharmacy informatics team created macros and dashboards as tools for the conversion process. Of the seven sites within VISN 17, five chose to utilize the macro conversion which automated the change of patients to fluticasone propionate/salmeterol based on their eligibility. Through the implementation of these tools, it is anticipated that facilities could perform their conversions more efficiently which would save the VA resources and time.

**Objective:** The primary objective is to evaluate fluticasone propionate/salmeterol post-conversion rates of composite therapy failures and intolerance. Therapy switches, dose increases, therapy addition, and respiratory disease exacerbations will serve as surrogate endpoints for therapy failure while dose decreases will serve as a surrogate marker for therapy

intolerance. The secondary objectives are: (1) to assess the conversion efficiency between macro and non-macro sites after 1, 3, and 5 months and (2) to measure the post-conversion rates for composite treatment failures or intolerance between asthma and COPD patients

**METHODS:** This will be a retrospective data review of patients converted from budesonide/formoterol to fluticasone propionate/salmeterol from 8/1/21 to 12/31/21. Patient fill data will be retrieved using Transact Structured Query Language (T-SQL). This will include patient fill records, their asthma or COPD diagnosis, and any hospital admissions related to asthma or COPD.

**RESULTS:** Results of this QA project will be presented at TSHP Alcalde 2022.

## IV-A: ID/HIV

### PL IV-1

#### **IMPACT OF INTENSIFIED CLINDAMYCIN STEWARDSHIP INITIATIVES IN THREE PHASES: A QUASI-EXPERIMENTAL STUDY**

Kelly C. Gamble, Dusten T. Rose, Theresa (Terry) Jaso, Kristin Mondy, Rama Thyagarajan, Leslie Coats; Ascension Seton, Austin, TX.

**PURPOSE:** Clindamycin utilization has provoked gram-positive and anaerobic bacterial resistance and is highly associated with *Clostridoides difficile* infections (CDI). The purpose of this study is to evaluate if implementing clindamycin-focused stewardship interventions impacts clindamycin utilization and outcome metrics.

**METHODS:** This multicenter, retrospective quasi-experimental cohort study was conducted in three phases between January-March: Phase 1 (2018) - pre-interventions; Phase 2 (2019) - in-services and prospective order reviews by the infectious diseases pharmacist; Phase 3 (2020) - criteria restrictions and order reviews by clinical pharmacists. Hospitalized adult patients who received clindamycin for an indication other than surgical prophylaxis were included. An academic medical center and a community hospital with comparable baseline clindamycin use were the intervention and control groups, respectively. The primary outcome was inappropriate utilization. The secondary outcomes include clindamycin duration of therapy per 1000 patient hospital days and 30-day CDI and readmission.

Chi-squared and Fisher's Exact tests were used for nominal data, T-test and Wilcoxon rank sum tests for continuous data, and descriptive analyses for all other data. An interrupted time series analysis was performed on segmented linear regression data.

**RESULTS:** The study included 481 patients. The primary outcome in the intervention group occurred in 94% in Phase 1, 72% in Phase 2, and 74% in Phase 3 (Phase 1 vs Phase 2:  $p < 0.001$ ; Phase 2 vs Phase 3:  $p = 0.76$ ). Comparing Phase 1, Phase 2, and Phase 3 between the intervention and control, respectively, the primary outcome occurred in 94% vs 93 % ( $p = 0.80$ ), 72% vs 88% ( $p = 0.03$ ), and 74% vs 89% ( $p = 0.03$ ).

**CONCLUSIONS:** The differences observed between Phases and the groups suggest that clindamycin-focused initiatives reduce inappropriate prescribing patterns. Additional prospective studies are needed to validate these findings.

#### PL IV-2

##### **EVALUATING THE USE OF DOXYCYCLINE VERSUS VANCOMYCIN FOR THE TREATMENT OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS-ASSOCIATED ACUTE PULMONARY EXACERBATIONS IN PATIENTS WITH CYSTIC FIBROSIS**

Kendall H. Brickel, Denise Kelley, Theresa Jaso, Hai Quyen Tran, Jason Fullmer, Danielle Beachler. Department of Pharmacy, Ascension Seton, Austin, Texas.

**PURPOSE:** Among patients with cystic fibrosis (CF), methicillin-resistant *Staphylococcus aureus* (MRSA)-associated acute pulmonary exacerbations (APEs) are increasing in prevalence and can cause rapid declines in lung function and mortality. Limited data exist on the preferred treatment of MRSA-associated APEs, with vancomycin often considered as first-line. Given the potential toxicities and intolerance associated with vancomycin, evaluating alternative therapies such as doxycycline is warranted. This study aims to add to the paucity of data by evaluating if doxycycline is an effective and safe option in the management of MRSA-associated APEs in patients

with CF.

**METHODS:** This is a retrospective cohort study of adult and pediatric patients with a CF diagnosis who received greater than 48 hrs of either vancomycin or doxycycline to treat MRSA-associated APEs within

the Ascension Seton network from May 1st, 2013 to August 31st, 2021. Patients were excluded if they were less than 8 years of age, were readmitted within 30 days after a prior MRSA-associated APE, or were missing either baseline, admission, or follow-up pulmonary function tests (PFTs). The primary endpoint was the incidence of patients with a return to greater than 90% of baseline forced expiratory volume in the first second (FEV1). Secondary endpoints included the mean percent change in FEV1 during hospitalization, duration of antibiotics, and the incidence of co-infections. Safety outcomes included the incidence of acute kidney injury (AKI)

and adverse drug events.

**RESULTS:** Out of a preliminary analysis of 229 patient encounters, 69 met inclusion criteria ( $n = 14$ , vancomycin;  $n = 16$ , doxycycline). There were no differences in the incidence of patients with a return to greater than 90% of baseline FEV1 (78.6%, vancomycin vs. 78.3%, doxycycline;  $p = 0.98$ ). There were also no differences in the mean change in FEV1 from admission to discharge ( $8.5\% + 6.2\%$ , vancomycin vs.  $11.8\% + 10.2\%$ , doxycycline;  $p = 0.3$ ), the mean duration of antibiotics ( $13.8 + 3.2$  days, vancomycin vs.  $15.7 + 5.0$  days, doxycycline;  $p = 0.19$ ), or the incidence of co-infections between groups (92.9%, vancomycin vs. 92.7%, doxycycline;  $p = 0.99$ ) including *Pseudomonas aeruginosa* co-infections [vancomycin 9/14 (64.3%) vs. doxycycline 46/51 (90.2%);  $p = 0.052$ ]. There were no differences in safety outcomes including AKI incidence, however the doxycycline group received significantly more nephrotoxins vs. the vancomycin group ( $p < 0.05$ ). One patient in each group had a documented adverse reaction to the study medication.

**CONCLUSION:** Based on preliminary data, doxycycline was comparable to vancomycin for all reported primary, secondary, and safety outcomes. An IRB amendment is currently under review to include specific additional groups that may have been excluded upon initial analysis.

#### PL IV-3

##### **DEVELOPING A PREDICTION MODEL FOR EXTENDED-SPECTRUM-BETA-LACTAMASE-PRODUCING ENTEROBACTERIACEAE IN ADMITTED PATIENTS WITH URINARY TRACT INFECTION**

Kami R. Woodard, Krystal K. Haase, Maegan Whitworth, Ronald Hall, Taryn Bainum, Madison Gilliam, BSA Health System and TTUHSC School of Pharmacy, Amarillo, TX.

**PURPOSE:** The prevalence of extended-spectrum-beta-lactamase (ESBL) organisms in hospitals is increasing, including those associated with urinary tract infection (UTI). Optimal treatment strategies depend on mechanisms to accurately predict the presence of these organisms. The purpose of this study is to develop a prediction tool to aid in identifying patients at increased risk for urinary tract infection UTI due to ESBL-producing Enterobacteriaceae at time of hospital admission. The study also characterizes treatment outcomes for ESBL versus non-ESBL infections.

**METHODS:** This is a retrospective cohort study of 200 adult patients admitted with a diagnosis of UTI. Patients were identified through query of ICD-10 codes for UTI and confirmed through manual review. Patient demographics, culture findings, and potential risk variables were collected through manual review of electronic health records. Candidate variables were selected and evaluated using a two-step process. Each collected variable was assessed for inclusion feasibility based on the availability of data in medical records. Variables that were adequately represented in both ESBL+ and ESBL- samples were then evaluated to construct a multivariable logistic regression model.

**RESULTS:** Data collection and analysis currently in progress.

**CONCLUSION:** Conclusion to be presented following the completion of data collection and analysis.

#### PL IV-4

##### COMPARISON OF BAYESIAN AUC CALCULATION PROGRAMS IN PATIENTS TREATED WITH VANCOMYCIN.

Ross Bryan, Ronald Hall, Jamie McCarrell, Angela Purvines, BSA Health System, Amarillo, TX.

**PURPOSE:** The use of trough concentrations to approximate the goal area under the curve (AUC) to minimum inhibitory concentration (MIC) ratio in the original vancomycin consensus statement was associated with an increase in acute kidney injury (AKI) rates amongst patients receiving vancomycin. Subsequent studies have informed the new consensus

statement that the use of AUC calculations to dose vancomycin results in lower AKI rates than using a 15-20 mcg/ml goal trough range. However, AUC calculations can be labor intensive and time consuming. This has led hospitals to utilize various Bayesian AUC software programs to assist with the dosing and monitoring of vancomycin. There is limited data comparing these Bayesian software programs to determine what, if any, differences exist between the predictions provided by these commercial products.

**METHODS:** This is a retrospective cohort study of 300 adult subjects who were admitted to BSA Health System. Patients were eligible for inclusion if they received treatment with intravenous vancomycin and had at least one vancomycin trough concentration and one baseline serum creatinine value available for evaluation. All data was collected through manual review of electronic health records before being de-identified and entered into the Bayesian software platforms. The resulting AUC and trough estimations provided by these programs were then recorded for further review.

**RESULTS:** Results are pending.

**CONCLUSION:** Conclusion to be presented following the completion of data collection and analysis.

#### PL IV-5

##### EVALUATION OF CHRONIC ANTIMICROBIAL SUPPRESSION IN VENTRICULAR ASSIST DEVICE INFECTIONS.

Nicholas Teran, Hannah Palmer Russo, M. Rizwan Sohail, Kady Phe. Baylor St. Luke's Medical Center, Houston, TX.

**PURPOSE:** This study aimed to evaluate the agent-specific efficacy of antimicrobial suppression in preventing or delaying relapsed left ventricular assist device (LVAD)-specific and LVAD-related infections. The safety of chronic suppressive therapy was also evaluated.

**METHODS:** This was a retrospective, single-center evaluation of patients who had a documented LVAD-specific or LVAD-related infection as defined by the International Society for Heart and Lung Transplantation (ISHLT) between January 2013 and October 2020 in Houston, Texas. Patients were

included if they had one of the following infections: infective endocarditis, mediastinitis, bloodstream infection, or an infection involving the LVAD hardware such as a superficial or deep driveline infection, pump-pocket infection, and pump or cannula infection. Relapsed infections were defined as those shown to recur at the same site caused by the same organism seen in the index infection. Patients were stratified by whether or not they received chronic antimicrobial suppression (CAS) after completing antimicrobial infection for their treatment. Time-to-relapsed infection was defined as the time, in days, between the index infection and first relapse.

**RESULTS:** In this study, 83 patients with a documented LVAD-specific (n = 68) or LVAD-related (n = 15) infection were included for analysis. 2 patients were excluded due to device explantation. Driveline infections were the most common LVAD-specific infection (n = 66) followed by pump and pump-pocket infections (n = 2). Bloodstream infections were the most common LVAD-related infections (n = 13) followed by mediastinitis (n = 2). For the index infection, all patients received antimicrobial treatment. Additionally, 16.4% required incision and drainage (I&D). *Staphylococcus aureus* was the most frequent causative organism in 46 cases. After receiving treatment for the index LVAD infection, 47 patients went on to receive CAS with the most common agent being minocycline in 22 patients. In patients who received CAS, 57.4% experienced a relapsing infection compared to 80.6% in those who did not receive CAS (p = 0.03). Agent-specific CAS efficacy was found to be non-significant due to the small sample (p = 0.31). The median time to relapse infection was 151 days (IQR 78-247) and 57 days (IQR 36-114) in the CAS and non-CAS groups, respectively (p = 0.0002). Overall, CAS was well tolerated in 87.5% of patients; however, 6 patients experienced adverse reactions requiring a change in therapy. Those adverse events included QTc prolongation (n = 2), diarrhea (n = 2), nausea (n = 1), and a rise in serum creatinine (n = 1).

**CONCLUSION:** The incidence of relapsing infections in the setting of CAS was reduced compared to those who did not receive CAS. Additionally, patients receiving CAS were relapse-free for a longer duration. Further studies are required to assess if one agent confers a significant benefit over another.

## IV-B: ID/HIV

### PL IV-6

#### CLINICAL OUTCOMES ASSOCIATED WITH VANCOMYCIN AUCS ESTIMATED WITH FIRST-ORDER PHARMACOKINETIC EQUATIONS USING TROUGH-ONLY DATA

Lauren Eichinger, Nathan Fewel, Amanda Trimm, Scott Winstead; Central Texas Veterans Healthcare System – Temple, Texas.

**PURPOSE:** The revised vancomycin monitoring guidelines recommend targeting an area under the curve (AUC) of 400-600 mg·hr/L for serious methicillin-resistant *Staphylococcus aureus* (MRSA) infections. An AUC can be measured by checking a peak and trough concentration at steady state; however, this requires obtaining an additional blood sample. New research suggests that pharmacokinetic equations can be used to estimate the AUC by using trough-only data but clinical outcome data to support this method is needed. The purpose of this project is to describe clinical outcomes associated with vancomycin dosing based on AUCs estimated from trough-only data.

**METHODS:** This was a single-site, retrospective, quality improvement project at a Veterans hospital. Patients who in the last two years were admitted to the hospital, had a positive MRSA culture, and were treated with IV vancomycin for greater than 2 days were reviewed for inclusion. The following data was collected for each patient by chart review: age, actual body weight, gender, infection site, duration of vancomycin therapy, mean estimated vancomycin AUC, presence of acute kidney injury, and therapeutic failure of vancomycin. For patients who had a documented failure, the following was noted: use of alternative antibiotics, persistent MRSA cultures lasting greater than or equal to 7 days, and recurrence of MRSA within 90 days. Descriptive statistics was used to describe the patient population and incidence rates.

**RESULTS:** A total of 57 unique patients were included in the analysis. There were 6 cases (10.5%) of vancomycin clinical failures. All patients who experienced failures were theoretically at steady state with an average estimated AUC within goal range (400 – 600 µg·h/L). One patient had infected hardware, two had multiple significant comorbidities complicating the infection, one was bed bound with a history of poor wound healing, and one had

osteomyelitis of the foot with poor vascular perfusion. The observed failure rate was lower than previous studies. Dombrowski et al. found a clinical failure rate of 25 percent when evaluating a cohort of patients with invasive MRSA infections.

Acute kidney injury occurred at an incidence of 16% (9/57 patients). Of these, 4 patients (44.4%) were concurrently receiving piperacillin/tazobactam at the time of the AKI.

**CONCLUSIONS:** This project suggests that AUC-guided dosing estimated using trough-only data is effective and safe while decreasing lab draws.

#### PL IV-7

##### **IN PATIENTS UNDERGOING COLORECTAL SURGERY, DOES THE USE OF ERTAPENEM FOR ANTIMICROBIAL PROPHYLAXIS REDUCE THE INCIDENCE OF SURGICAL SITE INFECTIONS COMPARED TO CEPHALOSPORIN WITH METRONIDAZOLE WITHIN A 7-DAY PERIOD?**

Daniel E. Garza, Daniela Bazan, Jonathan Cantu, Ronnie Ozuna, Rene Verduzco

**BACKGROUND:** The decision behind choosing one regimen over another in colorectal surgeries is not absolute. The Infectious Disease Society of America provides a recommendation that the use of ertapenem, or a cephalosporin in combination with metronidazole can be used to provide adequate coverage in preventing a surgical site infection. The question comes down to, "which treatment option is preferred?" While the fact remains that ertapenem provides a broader coverage with a convenient once daily dosing, is its use necessary in every patient? The growing resistance to our broader agents is a cause for concern in preserving these agents for patients who are most likely to be carriers of some type of extended-spectrum beta-lactamase organism, but how do we know which one?

**Objectives:** The focus for this project is primarily to see which patients contract a surgical site infection after colorectal surgery with comparison to the antibiotic regimen they received. After determining whether ertapenem is in fact superior to a cephalosporin combination with metronidazole; a deeper dive will be taken to assess characteristics of patients who developed infections, and the correlation between each patient and the given treatment. When observing patient characteristics and correlating our

choices of therapy with outcomes, the institution can develop a clinical prediction tool to be used within our institution when deciding on which therapy to choose for anti-microbial prophylaxis. This would create a streamlined service for physicians to use when deciding therapy to promote more positive outcomes in our patients and promote anti-microbial stewardship.

**METHODS:** This study will be a retrospective chart review which has been approved by the Institutional Review Board. The study will include patients >18 years of age who underwent a colorectal procedure from the year 2017 to 2021. To collect all the data, a report will be taken to list the patients who have come in to DHR Health for a colorectal procedure along with the therapy they received and any time they spent in the hospital there-after. Once data is compiled, patients will be split into two arms: Ertapenem vs other choice of therapy. After assessing the patients in the two groups, those that were found to have a surgical site infection, and those that were not will each split into another two separate groups. Those patients will then be assessed on several risk factors and characteristics they possess in the hopes to find a correlation to create a designated algorithm for providers to pick the most appropriate therapy.

**CONCLUSION:** Upon creating a streamlined algorithm for choice of treatment, the physicians at DHR Health can now use it to determine most appropriate therapy without sacrificing anti-microbial stewardship and provide the necessary coverage on a patient specific basis. This ultimately should lead to more desirable outcomes for the patient, and save resources for the institution.

#### PL IV-8

##### **COMPARATIVE OUTCOMES OF VACCINATED AND UNVACCINATED INDIVIDUALS HOSPITALIZED FOR COVID-19 IN A SOUTH TEXAS INSTITUTION**

Kathryn Oliveira, Daniela Bazan, Ronnie Ozuna, Jonathon Cantu, Sherri Abendroth, Lorena Gonzalez, Gabriel Garza, Sinha Samiran, DHR Health, Edinburg, TX.

**PURPOSE:** The Rio Grande Valley (RGV) population in South Texas is a largely Hispanic community at increased risk for COVID-19-related hospitalization and death due to higher rates of poverty, obesity, diabetes mellitus, and hypertension relative to state averages. Approximately 77% of the

RGV population is reported to be fully vaccinated, but this statistic may be overestimated due to population undercounts. Due to a lack of literature surrounding COVID-19 outcomes in this high-risk population, little is known about the vaccine's impact on disease severity in breakthrough cases necessitating hospitalization. In response, this study aims to evaluate patients hospitalized for COVID-19 in an RGV community hospital with the goal of reporting differences in clinical outcomes between patients who were previously vaccinated and those who were not.

**METHODS:** This study is a single-center, retrospective chart review of patients hospitalized for COVID-19 at DHR Health between June 2021 and January 2022.

Patients were included if they were 18 years of age and older with laboratory confirmed COVID-19. Patients with unknown vaccination status were excluded. The primary objective is to compare the rate of invasive mechanical ventilation between vaccinated and unvaccinated groups. Secondary objectives included comparing the length of hospital stay and rate of inpatient mortality between vaccinated and unvaccinated groups. This study was approved by the DHR Health Institute for Research and Development Institutional Review Board.

**RESULTS:** Research in Progress

**CONCLUSION:** Research in Progress

#### PL IV-9

##### EVALUATION OF DEFAULT DURATION CHANGE ON BROAD-SPECTRUM ANTIBIOTIC DAYS OF THERAPY

Loc Ngo, Madison Riojas, Laura Nelson, Claudia Kamper, Integris Baptist Medical Center, Oklahoma City, OK

**BACKGROUND:** A system-wide change was implemented in December 2021 at multiple institutions at INTEGRIS Health, changing the automatic stop date of antimicrobial medication orders from 14 to 10 days. This change in default duration was a measure taken to align more with antimicrobial stewardship practices regarding optimizing antimicrobial use, reducing antimicrobial resistance and incidence of *C. difficile*. The objective of this study is to identify whether a system-wide change to the hospital electronic health record (EHR) will

decrease the duration of therapy of broad-spectrum antibiotics.

**METHODS:** Sources of research material includes EHR data regarding subjects receiving broad-spectrum antibiotics at INTEGRIS Health acute care facilities. This study is a retrospective chart review of adult patients receiving a broad-spectrum antibiotic (cefepime, ampicillin-sulbactam, piperacillin-tazobactam, meropenem, and ertapenem) between 10 and 14 days in a single hospital admission. Patients who are less than 18 years old, received a broad-spectrum antibiotic greater than 14 days consecutively in a single admission, or were restarted on a broad-spectrum antibiotic within 48 hours of discontinuation are excluded. Review will be done based on new broad-spectrum antibiotic orders with the review periods being from December 10th, 2020 to March 10th, 2021 and from December 10th, 2021 to March 10th, 2022. The primary endpoint is the difference in broad-spectrum "antibiotic-sparing" days. This will be done by using an ordinal scale (ranging from 1-5) to associate number of consecutive days of therapy starting with 10 days with the ordinal value of 1 (i.e. 10 days □ 1, 11 days □ 2, 12 days □ 3, etc.). Secondary endpoints will be comparing number of days of broad-spectrum antibiotic therapy pre- and post-change in an intensive care (ICU) setting, and number of recommendations made by the antimicrobial stewardship team during treatment.

**RESULTS:** Data collection and analysis are currently in progress.

**CONCLUSIONS:** No conclusion has been made at this point as data collection and analysis are currently in progress.

## V-A: Psychiatry

#### PL V-1

##### THE EFFECT OF PHARMACY LED MEDICATION GROUPS ON PATIENT ATTITUDES AND PERCEPTION OF PHARMACOTHERAPY ON AN INPATIENT PSYCHIATRY UNIT

Nancy Aldape Garcia, Joel Kanter, John Coverdale, Mollie Gordon. Harris Health System, Houston, Texas

**PURPOSE:** The purpose of this study is to evaluate patients' attitudes and perceptions of pharmacotherapy before and after pharmacy-led-medication groups. The pharmacy-led medication groups will serve as an

opportunity for patients to increase their knowledge regarding their psychiatric medications (i.e. medication side effects and management strategies). This knowledge can empower patients and positively impact their attitudes towards pharmacotherapy and medication adherence while in the inpatient psychiatric unit.

**METHODS:** The study was approved by the institutional review board at Harris Health System. This single centered, prospective cohort study will include adult patients admitted to the inpatient psychiatric unit beginning March 2022. Participants will be excluded from the study if the primary team identifies patients as inappropriate to participate in therapeutic group activities due to agitation or disorganization. Baseline characteristics including age, gender, and psychiatric disorder(s) will be collected. Length of stay, number of pharmacy-led-medication groups attended, and medication adherence will also be assessed for patients. For the intervention, patients will complete the Brief Evaluation of Medication Influence and Beliefs Survey (BEMIB) and Drug Assessment Inventory (DAI) Survey prior to participation in pharmacy-led-medication groups. The BEMIB will be utilized as a tool to identify patients with a high risk of medication non-adherence. The Drug Assessment Inventory survey will assess attitudes towards medications. Participants will complete the DAI one last time after participation in the pharmacy-led medication groups to identify any changes in attitudes towards pharmacotherapy. For privacy concerns, patients will be encouraged to speak one-on-one with pharmacists for patient specific medication questions or concerns.

**RESULTS:** Research in process

**CONCLUSION:** Research in process

#### PL V-2

##### **COST EFFECTIVE ANALYSIS BETWEEN VALBENAZINE AND DEUTETRABENAZINE IN A VETERAN POPULATION.**

Ahmaya A. Mustafa, Dozie N. Dike, Brian G. Mitchell, Michael E. DeBailey Veterans Affairs Medical Center, Houston, TX.

**PURPOSE:** To evaluate the cost effectiveness of valbenazine and deutetrabenazine.

**METHODS:** A retrospective chart review will be conducted for patients in the Veterans Health

Administration (VHA) that have received valbenazine or deutetrabenazine for treatment of tardive dyskinesia from January 1, 2017 through July 31, 2021. The primary endpoint will be annual cost of medication per 1 point reduction in Abnormal Involuntary Movement Scale (AIMS) score (\$/AIMS unit). Secondary endpoints will include an assessment of the reduction in AIMS subsection scores and suicidal ideations/attempts. Patient data will be collected through the VA Computerized Patient Record System (CPRS) and VA Joint Legacy Viewer (JLV). Eligible patients will be identified within the VA Business Intelligence Services Line (BISL) Pharmacy Prescription database. Gender, race, age, duration of tardive dyskinesia, baseline AIMS score, primary psychiatric disorder, maintenance antipsychotic medication, dosage and duration, and VMAT2 inhibitor medication, dosage and duration will be collected to determine baseline patient characteristics. We will also collect occurrence of QTC prolongation, sedation, extrapyramidal symptoms, and depression or suicidality as safety data points.

**RESULTS:** In progress.

**CONCLUSION:** In progress.

#### PL V-3

##### **DESCRIPTION OF A CLINICAL PHARMACIST'S IMPACT ON ANTIPSYCHOTIC PRESCRIBING PATTERNS BASED ON RACE**

Maggie Agosta, Thomas Maestri, David Anderson, University Medical Center New Orleans, New Orleans, LA

**PURPOSE:** To identify the impact of a clinical pharmacist on the prescribing patterns of antipsychotic medications in an inpatient setting based on racial/ethnic backgrounds. This study will target potential mental health care disparities related to antipsychotic exposure by exploring dose and appropriateness of therapy based on Food and Drug Administration (FDA) labeling and avoidance of polypharmacy.

**METHODS:** A retrospective chart review of 154 patients admitted to inpatient psychiatry who had a psychiatric diagnosis that warranted a prescription for an antipsychotic medication at the time of discharge. Frequencies were computed to describe differences in demographic variables (race, health insurance type, age, and gender), medical conditions (diagnosis,

commodities, hospitalization status, antipsychotic medications, etc.), screening tests (eg. lipid panel, urine toxicology), total daily chlorpromazine equivalents, and appropriateness of therapy.

**RESULTS:** A retrospective chart review of 154 patients was performed. No significant relationship was shown between race and total daily chlorpromazine equivalents (T-CPZE) ( $P < 0.001$ ). Increased total past antipsychotic trials were associated with significantly higher T-CPZE ( $P < 0.001$ ), while patients with increased age were associated with significantly lower T-CPZE ( $P = 0.012$ ). 96.75% of patients with a clinical pharmacist intervention received appropriate therapy based on FDA labeling. 5/154 patients in the study received inappropriate therapy based on FDA labeling.

**CONCLUSION:** Pharmacist interventions were shown in this study to help promote appropriate prescribing of antipsychotic medications in a largely indigent and minority patient population.

#### PL V-4

##### **RISK OF BLEEDING IN VETERANS TAKING APIXABAN OR RIVAROXABAN AND EITHER SERTRALINE OR BUPROPION.**

Atinder Singh, John Pinsonnault, Rick Weideman, Kristen Backe, Chinonye Nwaokemele, VA North Texas Health Care System; Dallas, TX.

**BACKGROUND:** The greatest concern with the use of factor Xa inhibitors is increased bleeding risk. Bleeding risk is further increased with certain medical conditions and with the concurrent use of other medications that affect platelet function. Serotonin is released from platelets in response to vascular injury, resulting in vasoconstriction and a change in the shape of platelets that leads to aggregation. Selective serotonin reuptake inhibitors (SSRIs) inhibit the action of serotonin reuptake transporters in both neurons and platelets. With the inhibition of serotonin reuptake with the use of SSRIs, serotonin availability is decreased within the platelet. Ultimately this reduces the coagulative effects of serotonin and results in increased bleeding risk. Severe bleeding is 40% more likely in patients taking SSRIs according to a review in The Journal of the American Osteopathic Association. Mechanistically, it is expected that bupropion would not increase bleed risk in patients as compared to SSRIs. Although most literature does show that bupropion does not increase bleed risk, there is some evidence showing it could increase bleeding.

**PURPOSE:** to evaluate the association of major bleeding events in Veterans taking apixaban or rivaroxaban and either a sertraline or bupropion. Our goal is to assist clinicians in making treatment decisions when prescribing antidepressant therapy to Veterans that are on concurrent anticoagulation therapy.

**METHODS:** Using data collected from North Texas VA Health Care System electronic health records, we identified Veterans who experienced a major bleeding event while taking both apixaban or rivaroxaban and either sertraline or bupropion from October 1, 2010 to August 31, 2021. Major bleed event data was identified and collected using ICD billing codes. Veterans were excluded if they had a comorbidity or were on concurrent therapy that increased their bleed risk.

**RESULTS:** Analysis of collected retrospective data is currently in progress and is expected to be completed by April 2022.

**CONCLUSIONS:** Conclusions will be presented upon completion of data analysis.

#### PL V-5

##### **INCIDENCE OF VENOUS THROMBOEMBOLISM AMONG COMMONLY PRESCRIBED SECOND-GENERATION ANTISPYCHOTICS**

Rachel Paulmann, Kristen Backe, John Pinsonnault, Melissa Humble, Kevin Kelly. Veterans Affairs North Texas Health Care System, Dallas, TX.

**PURPOSE:** To determine if patients taking second generation antipsychotic (SGA) risperidone are at a higher risk of VTE compared to those prescribed aripiprazole or olanzapine.

**BACKGROUND:** Antipsychotics are medications that are commonly prescribed to treat a variety of mental health conditions among the Veteran population. Use of these medications is associated with various negative side effects including weight gain, glucose dysregulation, sedation, and more. Recent data has shown a correlation of various antipsychotic medications with venous thromboembolism (VTE). VTE is a serious condition that can lead to high morbidity or even mortality.

**METHODS:** Retrospective chart review of adult Veterans between ages of 18 to 89 years at the VA-

NTX HCS between October 2015 to December 2019 who were prescribed and had at least two refills of Aripiprazole, Olanzapine, or Risperidone. Incidence of VTE was collected and compared between veterans taking risperidone vs aripiprazole and olanzapine.

**RESULTS:** 823 Veterans were included in data analysis, 247 patients in aripiprazole group, 175 patients in olanzapine group, and 398 patients in risperidone group. 14 of the 823 Veterans had a VTE event, 1 event in the aripiprazole group, 3 events in the olanzapine group, and 10 events in the risperidone group. Patients in the risperidone group were more likely to have suffered a VTE event compared with patients in the aripiprazole group ( $p=0.044$ ). There were no differences found in VTE events between risperidone group and olanzapine group ( $p=0.55$ ). There were no deaths following event in any of the three groups.

**CONCLUSION:** Oral antipsychotic therapy with risperidone results in an increased risk of VTE when compared to oral therapy with aripiprazole.

## V-B: Internal Med/Pharmacotherapy

### PL V-6 EVALUATION OF BLEEDING IN ORTHOPEDIC SURGERY WITH PERIOPERATIVE USE OF SELECTIVE SEROTONIN REUPTAKE INHIBITORS.

Soon Hye Yang, Charles F. Seifert, Texas Tech University Health Sciences Center Jerry H. Hodge School of Pharmacy, Lubbock, Texas.

**PURPOSE:** Selective serotonin reuptake inhibitors (SSRIs) are the mainstay of treatment currently in use for major depression, anxiety disorders, obsessive-compulsive disorders, and posttraumatic stress disorder. SSRIs are the preferred first line of medication for depression because of their higher tolerability and lower toxicity compared to the older tricyclic antidepressants, however, SSRIs are associated with several adverse effects including nausea, agitation, insomnia, and sexual dysfunction. There are well-established data that SSRIs block the reuptake of serotonin causing the depletion of serotonin from platelets which plays an important role in platelet aggregation. This effect is associated with an increase in bleeding, and several cases have been reported including gastrointestinal tract bleeding and

spontaneous intracranial bleeding. There have been concerns that SSRI exposure during the perioperative period has the potential bleeding risk in patients undergoing surgical operations. The purpose of this study is to compare the rate of major bleeding events between patients who were on perioperative selective serotonin reuptake inhibitors (SSRIs) and those not on SSRIs in orthopedic surgery.

**METHODS:** This is a retrospective cohort study of adult subjects who were admitted to a 501-bed tertiary care county teaching hospital, University Medical Center (UMC) in Lubbock Texas from September 1, 2016, to August 31, 2021. This study included all adult medical patients who were admitted to UMC for orthopedic surgery including hip fracture repair, and total hip or knee replacement. Screening of patients' home medications was completed to evaluate patients on anticoagulants, non-steroidal anti-inflammatory drugs (NSAIDs), and antiplatelet agents including SSRIs. A manual review of patient records was used to determine whether inclusion/exclusion criteria have been met and to categorize patients as either "bleeding events" or "no bleeding events" during or post-operation. Exclusion criteria included cancer, thrombocytopenia, pregnant women, prisoners or ward of the state, individuals affected by inherited or acquired coagulopathies, chronic liver disease, platelet disorders, and history of GI or other major bleeding events. Patient demographics, type of surgery, comorbidities, name, and dose of SSRIs, duration of SSRIs exposure peri operation, CBC, estimated blood loss, amount of transfusion during the surgery and after surgery, use of anticoagulants, antiplatelet, NSAIDs, and PPIs, use of alcohol, and HAS-BLED score will be collected.

**RESULTS:** From a total of 120 patients who underwent orthopedic surgery, subjects were matched 1:1 based on whether preoperative use of SSRIs or not. Most patients were female (67%) and white (75%), with a median age of 66 years at the time of orthopedic surgeries. Compared with those who did not receive SSRIs, patients who received SSRIs had a higher transfusion rate (30.0% vs 15.0%;  $P=0.0491$ ). Patients who received transfusion were more likely to be elderly (median age of 79 years vs 66 years;  $P=0.0095$ ). Additional data analysis is in progress.

**CONCLUSION:** In progress.

**PL V-7  
IMPACT OF SGLT-2 INHIBITORS  
PRESCRIBED IN A CLINIC SETTING ON  
REDUCING THE RISK OF HFrEF  
HOSPITALIZATIONS IN A COMMUNITY  
HOSPITAL SYSTEM.**

Erika Gutierrez, Molly Minze, TTUHSC Jerry H. Hodge School of Pharmacy/Hendrick Medical Center – Abilene, Texas.

**PURPOSE:** Approximately 1 in 4 heart failure (HF) patients are readmitted within 30 days of discharge and nearly half are readmitted within 6 months. The DAPA-HF and EMPEROR-Reduced landmark trials analyzed a composite cardiovascular (CV) death or heart failure with reduced ejection fraction (HFrEF) hospitalization reduction when using sodium glucose-cotransporter-2 protein (SGLT-2) inhibitors dapagliflozin and empagliflozin, respectively. Currently, there is no literature that compares the role of dapagliflozin and empagliflozin in reducing hospitalizations in an outpatient HF clinic or community hospital setting. Hendrick Medical Center (HMC) has had an interprofessional outpatient HF clinic that services Abilene community members. The purpose of this study is to determine hospitalization or urgent HF clinic readmission reduction rates in HFrEF patients who were prescribed dapagliflozin or empagliflozin post-index date. Index date is defined as an initial hospitalization or urgent HF clinic visit.

**METHODS:** HMC both inpatient and outpatient services utilize the Allscripts electronic medical record system. This resource will be utilized to evaluate patients admitted to the HF clinic from October 2019 to August 2021 with a focus on hospitalization and readmission history. Data will be collected by electronic chart review of patients in the Hendrick Health Outpatient Heart Failure Clinic, including patient demographics, hospital and clinic record history, ejection fraction, SGLT-2 prescription use, matched by age, gender, and severity of HF. Patients will be sorted into groups by whether or not they were prescribed dapagliflozin or empagliflozin post-index date. Outcomes will be compared to a matched cohort of HF patients prescribed an SGLT-2 inhibitor versus patients not prescribed an SGLT-2 inhibitor. This study will also utilize the similar criteria as the DAPA-HF and EMPEROR-Reduced trials.

**RESULTS:** Data collection is currently in progress.

**CONCLUSION:** Data collection is currently in progress.

**PL V-8  
IN-HOSPITAL ANTIHYPERTENSIVE  
PRESCRIBING AFTER ACUTE ISCHEMIC  
STROKE.**

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**PURPOSE:** Stroke is the leading cause of serious long-term disability in the United States. Although current guidelines recommend against the use of antihypertensive therapy in patients with a blood pressure less than 220/120 mmHg, prescribing patterns have shown to be inconsistent with this data. The purpose of this study is to assess the use of antihypertensive medications within the first 24 hours after hospitalization in relation to current guideline recommendations and to characterize process variables and outcomes associated with specific use patterns.

**METHODS:** Retrospective cohort study of patients 40-89 years of age who were admitted to the hospital acute ischemic stroke between January 1, 2019, and December 31, 2021. Subjects were identified through ICD-10 codes and confirmed through manual chart review. Patients were excluded if transferred from an outside facility > 6 hours after start of stroke symptoms, hospital survival < 24 hours, severe stroke, coma at presentation, concomitant hemorrhagic stroke, COVID-19 infection, or history of atrial fibrillation or flutter. Patient demographics, comorbidities, antihypertensive medication use prior to hospitalization, and stroke treatments (e.g., receipt of alteplase) were collected. Prescribing patterns were assessed including antihypertensive medication, route, frequency, schedule, and the type of prescriber. Primary analysis was performed using basic descriptive statistics. Chi square test or Fisher's exact test were used to assess differences in prescribing patterns and other categorical data. Student's t-test was used to compare continuous data including blood pressure variables. Multivariable logistic regression will be used to assess the association between prescribing patterns and outcomes.

**RESULTS:** Data collection and analysis are currently in process.

**CONCLUSION:** Conclusion to be presented following the completion of data collection and analysis.

**PL V-9  
INFLUENCE OF PATIENT  
CHARACTERISTICS ON PROVIDER  
DEVIATION FROM GUIDELINE-BASED  
TREATMENT OF HFrEF WITHIN  
OUTPATIENT FAMILY MEDICINE AND  
INTERNAL MEDICINE CLINICS.**

Karlyn E Hood, Rachel Basinger, Rodney B Young, Tarek Naguib, Jason Paulson, Giftina Wilson, Madison Gilliam, Roman Hodson, Eric J MacLaughlin, Texas Tech University Health Sciences Center Jerry H. Hodge School of Pharmacy, Amarillo, TX.

**PURPOSE:** Heart failure with reduced ejection fraction (HFrEF) is a significant cause of morbidity and mortality in the U.S. Although data have demonstrated that guideline-directed medical therapy (GDMT) improves outcomes, hospitalizations and death remain common. The purpose of this study was to identify possible HFrEF treatment gaps in academic teaching clinics and develop systems to improve the care of these patients.

**METHODS:** This was a retrospective cohort analysis of outpatients seen at Texas Tech Community and Family Medicine and Internal Medicine clinics between 01/01/2018 and 02/29/2020. Patients were included if they were  $\geq 18$  years old and diagnosed with chronic or acute HFrEF, combined systolic and diastolic heart failure (HF), congestive HF, HF due to hypertension or end-stage HF, and a left ventricular ejection fraction of  $< 40\%$ . Exclusion criteria included pregnancy, comfort care or hospice, recipients of a heart transplant, using a left ventricular assistive device, on dialysis, or prisoners or wards of the state. Patients were stratified by race, sex, age, insurance status, the severity of HFrEF, and healthcare access. Adherence to HFrEF GDMT was analyzed by patient subset and medication class. Demographic and baseline characteristics were analyzed via descriptive statistics. Primary and secondary objectives were analyzed using Chi-Square or Fisher's Exact test, where appropriate.

**RESULTS:** 96 patients were identified and evaluated. Overall, 20% of patients were prescribed 3 GDMT agents ( $\beta$ -blocker+ACEI/ARB/ARNI+spironolactone), 37%

were prescribed 2 GDMT agents ( $\beta$ -blocker+ACEI/ARB/ARNI), 27% were on a single GDMT agent, and 9% were on no GDMT. HFrEF patients on GDMT with private insurance were more likely to be on 3 GDMT agents than those with non-private insurance (Medicare/Medicaid/Self-pay) (34.7% vs. 15.1%,  $p=0.039$ ). Patients  $>65$  years were less likely to be on 3 agents but were more likely to be on a combination of a  $\beta$ -blocker + ACEI/ARB/ARNI or a  $\beta$ -blocker + spironolactone when compared to patients  $<65$  years old (8.3% vs. 26.7%,  $p=0.029$ ; 52.7% vs. 26.7%,  $p=0.01$ ; 11.1% vs. 1.7%,  $p=0.044$ , respectively). Few patients (3.6%) were prescribed GDMT agents at optimal, target doses.

**CONCLUSION:** GDMT was underutilized in this patient population. Demographic differences in prescribing were identified based on age and funding status. It is unclear whether these differences were based on demographics or other factors such as medication tolerability. Improved documentation of HFrEF diagnosis, echocardiogram results, and reasons for not using GDMT are warranted in our clinics.

## VI-A: Pediatrics/Neonatal

**PL VI-1  
IMPACT OF A NURSING EDUCATIONAL  
INITIATIVE ON VACCINATION RATES IN  
PEDIATRIC PATIENTS IN AMBULATORY  
CARE CLINICS ELIGIBLE FOR HUMAN  
PAPILLOMA VIRUS (HPV) VACCINATIONS**

Payton Hightower, James Tyler, Jean Dib, CHRISTUS Trinity Mother Frances Health System, Tyler, TX.

**PURPOSE:** Human Papillomavirus (HPV) is a sexually transmitted infection common among both men and women and can cause various types of cancer. HPV vaccination can prevent more than 90% of HPV cancers when given at the recommended age. Vaccination completion has been shown to depend on the health care system rather than patient and parental interactions. Provider-focused interventions that include education, feedback and repeat contact to increase HPV vaccination rates show positive outcomes on vaccination rates after implementation. It has also been shown that educational interventions with clinical staff increased vaccination rates over a three-month period. CHRISTUS Trinity Clinics currently estimate a historical HPV vaccination series completion rate of 32.5% of eligible 13-year-old patients and 19.9% of patients aged 19-26 among our

clinic patients. Falling below the national average for HPV vaccination rates provides opportunities for improvement. Nursing education to provide more confidence and knowledge when encountering patients and parents with HPV vaccine questions is a possible target for intervention. Parents are essential in HPV-vaccination decision-making for pediatric patients eligible to receive the vaccine, and interventions that increase counseling to parents may be a key to increasing HPV vaccination rates.

**METHODS:** A nursing education presentation concerning HPV statistics, vaccination efficacy statistics, side effects, as well as counseling tips for HPV vaccinations and recommendations was conducted for pediatric nurses at CHRISTUS Trinity Clinic Turtle Creek and Broadway Commons in Tyler, TX, along with family practice clinics in Whitehouse, TX and Lindale, TX. Primary outcome of rate of eligible vaccinated patients ages 9-26 years of age was assessed pre- and post- implementation. A baseline self-assessment composed of seven questions was collected before and after the education initiative was implemented to determine nursing confidence.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL VI-2

##### INTEGRATION OF THE KEY POTENTIALLY INAPPROPRIATE DRUGS IN PEDIATRICS (KIDS LIST) AT A LARGE ACADEMIC HEALTHCARE SYSTEM.

Yazmin Garza, Jordan Burdine, Roel Basaldua, Katie Rucker, The University of Texas Medical Branch, Galveston, TX.

**PURPOSE:** To evaluate the impact of electronic medical record alternative alerts to reduce the use of Key Potentially Inappropriate Drugs in pediatrics at a large academic healthcare system.

**BACKGROUND:** In 2020, the Pediatric Pharmacy Association published a list of “Key Potentially Inappropriate Drugs in Pediatrics” (KIDs List) to help identify common medications that may result in an increased risk for adverse drug reactions or harm in pediatric patients. The University of Texas Medical Branch (UTMB Health) is a large academic healthcare system serving adults and children. With the current patient mix of both adults and children, the implementation of the KIDs List presents a unique

challenge with potential for positive impact on prescribing practices. A preliminary formulary review and prescribing analysis of the 67 drugs included on the Kids List was performed in July 2021 and a detailed usage analysis was performed for the 15 most frequently prescribed drugs at UTMB. After evaluating prescribing practices, usage, and impact of potential interventions, six drugs were selected for initial intervention. It was concluded that creating alternative alerts within the electronic medical record (EMR) for metoclopramide, prochlorperazine, promethazine, codeine-acetaminophen, codeine-guaifenesin, and tramadol could decrease inappropriate prescribing.

**METHODS:** This retrospective, pre- and post-intervention study will analyze the impact of electronic health record (EHR) alternative medication alerts on inappropriate prescribing practices in pediatric patients receiving care within UTMB Health. Pediatric patients less than 18 years of age with medication orders for metoclopramide, prochlorperazine, promethazine, codeine-acetaminophen, codeine-guaifenesin, and tramadol were evaluated. The primary objective of the study is to evaluate the number of inappropriately prescribed medication orders. Secondary endpoints will include the number of times an alternative alert is accepted or bypassed, reasons for bypassing the alert, and the most used alternatives by providers.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL VI-3

##### COMBINATION ANTIBIOTIC THERAPY WITH CEFTRIAXONE AND METRONIDAZOLE VS PIPERACILLIN/TAZOBACTAM FOR POST-OPERATIVE TREATMENT OF PERFORATED APPENDICITIS IN CHILDREN

Maggie E. Benton, PharmD, Cindy McCune, Derek Templet, Brian Nguyen, Marisol Fernandez, University of Texas at Austin

**PURPOSE:** The optimal postoperative antibiotic regimen that balances antimicrobial stewardship with clinical outcomes for perforated appendicitis in children has yet to be established in existing literature. Based on recent results of the IMPACT study, use of piperacillin/tazobactam (TZP) may be associated with lower rates of postoperative intraabdominal abscess

(IAA) formation. However, these findings need to be locally validated due to the risk of developing bacterial resistance associated with unnecessary broad-spectrum antibiotic use. The purpose of this study is to evaluate if there is significant difference in clinical outcomes for perforated appendicitis empirically treated with ceftriaxone (CRO)/ metronidazole (MTZ) compared to TZP.

**METHODS:** This single-center, retrospective cohort study was conducted in hospitalized pediatric patients with perforated appendicitis between January 2015 to August 2021. Patients  $\leq 18$  years of age with surgical removal of documented perforated appendix that were treated with either CRO/MTZ combination therapy or TZP monotherapy were reviewed for study inclusion. Patients were excluded if they had an IAA documented prior to surgery, had a history of organisms resistant to study drugs, or had a documented allergy to the study drugs. The primary endpoint was rate of postoperative IAA formation. Secondary endpoints included 30-day infection related hospital readmission, duration of intravenous antibiotic therapy, total antibiotic duration, inpatient length of stay, escalation of antibiotic therapy and adverse events. Hospital readmission was defined as an inpatient admission or emergency department visit. Chi-squared tests were used for nominal data. Wilcoxon rank sum test was used for nonparametric continuous data, and descriptive analyses for all other data.

**RESULTS:** A total of 2,647 patients were screened for inclusion and a total of 143 patients met inclusion criteria. A total of 3 (2%) patients received TZP compared to 140 (97.9%) who received CRO/MTZ. A total of 16 (11.4%) postoperative IAA were identified. The rate of IAA increased from 2015 to 2021 from 8% to 19.2%, respectively.

**CONCLUSION:** Based on the preliminary results of this study, the difference in clinical outcomes for perforated appendicitis empirically treated with CRO/MTZ compared to TZP were unable to be assessed due to lack of enrollment in the TZP group. The primary outcome of the rate of postoperative IAA was still evaluated for patients who received CRO/MTZ. Based on these findings, further studies are needed to determine factors influencing the increased rate of IAA observed within our institution.

#### PL VI-4

#### A RETROSPECTIVE REVIEW OF TIME TO BLOOD CULTURE POSITIVITY IN THE NEONATAL INTENSIVE CARE UNIT.

Kasaandra Ibañez, Christine Domonoske, Michael Chang, Amir Khan, Children's Memorial Hermann Hospital, Houston, TX.

**PURPOSE:** Sepsis is commonly suspected and potentially life-threatening for infants in the neonatal intensive care unit (NICU). To minimize delays in initiating appropriate antimicrobial therapy, broad-spectrum antibiotics are usually started immediately if sepsis is suspected. However, many neonatal blood cultures obtained for sepsis evaluations remain negative for bacterial growth, suggesting a high rate of potentially unnecessary antibiotic use in the NICU. Currently, it is common practice at Children's Memorial Hermann Hospital (CMHH) to wait 48 hours after a negative blood culture was obtained before excluding a diagnosis of sepsis. Multiple studies have demonstrated that neonatal sepsis could be safely excluded if blood cultures remain negative for 24-36 hours. Furthermore, this process has not been re-evaluated since the hospital implemented Verigene® for rapid identification of microorganisms, which can be utilized to de-escalate broad-spectrum therapy. This project aims to evaluate the time to positivity of blood cultures obtained in the NICU at CMHH.

**METHODS:** This was a single-center retrospective observational research project. Data were collected through a retrospective chart review of NICU patients at CMHH from August 23, 2017 through August 31, 2021 following the hospital's implementation of Verigene® for rapid identification of microorganisms. Blood cultures collected at outside hospitals before admission at CMHH or lacking Verigene® results were excluded. Demographic data (gestational age, birth date and time, birth weight, gender), clinical data (reason for sepsis evaluation, antibiotic therapy, disposition at discharge), and laboratory data (blood culture date and time, result date and time, microorganism identified) were collected for each patient from the institution's electronic records. The time to blood culture positivity, the incidence of early-onset and late-onset positive blood cultures, the frequency of identified pathogens, the duration of empiric antibiotic therapy, and the sepsis-related mortality rate was assessed. Findings observed during the retrospective review were analyzed, and the results

were discussed in collaboration with department physicians to implement a new institutional process.

**RESULTS:** A total of 210 positive blood cultures were screened for data collection and 178 met inclusion criteria. Patients had a median gestational age of 28.6 weeks (IQR 24.8-35.1), median birth weight of 1080 grams (IQR 655.3-2337.5), and 53% were male. The median time to a preliminary positive blood culture was 19.2 hours (IQR 14.8-24.0), while the median time to Verigene® organism identification was 24.3 hours (IQR 20.5-29.9). Blood cultures grew Gram-positive organisms 57% of the time, with the most common organisms being coagulase-negative Staphylococci (21%) and *S. aureus* (20%).

**CONCLUSION:** Based on the interim data of this retrospective study, blood cultures from patients in the NICU at CMHH can be expected to have a positive result within 36 hours of collection. Therefore, the time to exclude sepsis could be safely decreased from 48 to 36 hours for this patient population, reducing unnecessary antibiotic exposure.

#### PL VI-5

##### EARLY WARNING SIGNS FOR NEONATAL LATE-ONSET SEPSIS

Rhea S. Soltau, April Graves, Amie Ballard, Memorial Hermann The Woodlands Medical Center, The Woodlands, TX.

**PURPOSE:** To evaluate vital signs such as FiO<sub>2</sub>, temperature, apneic/bradycardic events, emesis, and urine output to assess their ability to serve as an early warning sign (EWS) in neonates admitted to the neonatal intensive care unit (NICU) who developed late-onset sepsis (LOS).

**METHODS:** Using data retrospectively collected from the institutions electronic record's, we compared standardized vital sign changes 24-, 48-, and 72-hours before the collection of a blood culture in neonates who were at least 72-hours old.

**RESULTS:** A total of 237 patients were included, with 50 being included in the positive blood culture group and 187 in the negative blood culture group. The characteristics between the groups were similar. A change in FiO<sub>2</sub> (increase >10% from baseline) 24-hours (OR, 0.67 [95% CI, 0.14 to 2.77]) or 48-hours (OR, 1.93 [95% CI, 0.46 to 7.99]) prior to the blood culture being drawn showed no statistically significant difference between patients with a positive blood

culture and those with a negative blood culture. Infants with a positive blood culture had cultures drawn more often in week three of life (Median, 14 [IQR, 19.25]) versus week four of life (Median, 22 [IQR, 29]). In addition, the other vital signs did not show any statistically significant difference between the positive blood culture and negative blood culture group when evaluated.

**CONCLUSION:** Based on this study the use of changes in vital signs as early warning signs for late onset sepsis does not prove useful for a NICU population.

#### VI-B: Oncology

##### PL VI-6

##### LEAN-METHODOLOGY APPROACH TO OPTIMIZING CHEMOTHERAPY TURNAROUND TIME

David Rivas, Sunaina Rao, Theresa Yarger, Baylor Scott and White All Saints Medical Center, Fort Worth, Texas

**PURPOSE:** Longer wait times exacerbate an already stressful process for oncology patients. Various studies have confirmed that prolonged wait times lead to financial burdens, lowered perceptions of care, and increased patient/employee dissatisfactions. Lean methodology has produced a spectrum of success ranging from identification of inefficiencies in specific areas of pharmacy, increased revenues, elimination of wastes, maximized pharmacist time, and patient satisfaction. The purpose of this study is to improve patient healthcare by optimizing cancer-related treatment turnaround times for inpatients at Baylor Scott & White Health All Saints Medical Center.

**METHODS:** Single-center, retrospective, chart review analysis of patients receiving initial and repeated doses of inpatient chemotherapy. Analysis of data will consist of descriptive statistics to analyze chemotherapy processes. Treatment turnaround time will be examined for potential elimination of areas of waste and improvement. Primary endpoint: Time from admission until start of chemotherapy, not including any utilized premedications. Secondary endpoint includes length of patient stay. Exclusion criteria consisted of timing and administration of premedications, if utilized, prior to starting chemotherapy regimens.

**RESULTS:** Pending data analysis

**CONCLUSION:** Pending data analysis

**PL VI-7**

**EVALUATION OF VENETOCLAX DOSE ATTENUATION PLUS HYPOMETHYLATING AGENT IN ELDERLY PATIENTS WITH ACUTE MYELOID LEUKEMIA.**

Hannah Otiker, Grace Hwang, Gustavo Rivero, Baylor St. Luke's Medical Center, Houston, TX.

**PURPOSE:** To evaluate the effectiveness of venetoclax dose attenuation plus hypomethylating agent in elderly patients with acute myeloid leukemia (AML)

**METHODS:** This retrospective chart review was conducted on previously untreated or newly diagnosed AML patients at Baylor St. Luke's Medical Center from January 2018 to October 2021. Patient information was accessed via electronic medical record. Patients were included if they had a confirmed diagnosis of AML, received at least 1 cycle of venetoclax and a hypomethylating agent, and were not eligible for intensive chemotherapy. Patients were excluded if they had loss to follow up or died prior to completing 1 cycle. The primary endpoint was response rate including complete remission and complete remission with incomplete bone marrow recovery. Fisher's exact test was used to analyze response rate and adverse events. Kaplan-Meier survival analysis was used for median overall survival. All other endpoints were analyzed using descriptive statistics.

**RESULTS:** A total of 41 patients were included. The median age was  $67.6 \pm 4.9$  years in  $> 8400$  mg group and  $69.4 \pm 10.1$  years in  $< 8400$  mg group. 12 patients received  $> 8400$  mg cumulative dose of venetoclax (29.3%) and 29 patients received  $< 8400$  mg cumulative venetoclax dose (70.7%). The response rate was not statistically significant between the groups (75.0% vs. 58.6%,  $p = 0.4799$ ). The median OS in days for  $< 8400$  mg group was 9.2 months and  $> 8400$  mg group was 12.4 months ( $p = 0.4335$ ). Majority of patients (65.9%) received 14 days of venetoclax during induction period. The antifungal agent used most concurrently was fluconazole (80.5%). For renal function with use of hypomethylating agent, 8 patients (19.5%) developed acute kidney injury. Key adverse events include prolonged neutropenia (75.0% vs. 89.7%,  $p = 0.3344$ ), infections of any grade (58.3% vs. 48.3%,  $p = 0.7337$ ), and febrile neutropenia (58.3% vs. 65.5%,  $p = 0.7300$ ).

**CONCLUSION:** The similarity in treatment response between the patients that received venetoclax cumulative dose of  $< 8400$  mg and  $> 8400$  mg and similarity in median overall survival shows the effectiveness of venetoclax dose attenuation plus hypomethylating agent in elderly patients with AML.

**PL VI-8**

**CETUXIMAB AND PANITUMUMAB THERAPY: AN EVALUATION OF HYPOMAGNESEMIA IN PATIENTS EXPOSED TO CONCURRENT PROTON PUMP INHIBITOR THERAPY VERSUS UNEXPOSED**

Carly Shick, So Jung Uhm, Megan Roberts, Amanda Bradley, Baylor Scott & White Medical Center, Temple, TX.

**PURPOSE:** Patients treated with cetuximab and panitumumab, epidermal growth factor receptor inhibitors (EGFR-Is), experience increased incidence and severity of hypomagnesemia. Limited studies have focused on the clinical impact of hypomagnesemia severity of EGFR-Is with concurrent proton pump inhibitors (PPIs) use. This study additionally evaluated magnesium replacement needs of this population alongside incidents of hypomagnesemia compared to those not concurrently on PPIs.

**METHODS:** This is a retrospective, multi-center study assessing patients across a large medical system and its cancer centers in north and central Texas from July 1st, 2016, to June 30th, 2021. An electronic medical record system was used to access data points and excluded patients with diagnosis of hypomagnesemia prior to EGFR-I exposure dates or patients with lack of data. Baseline characteristics collected included age, weight, body-mass index, cancer types, baseline serum creatinine, and exposure to other magnesium altering agents (irinotecan, cisplatin, loop diuretics, thiazide diuretics, cyclosporine, aminoglycosides, and amphotericin B). Analysis of the primary endpoint was executed using the Chi-squared test of independence for association between incidence of hypomagnesemia and exposure to PPIs. Descriptive statistics were used to assess secondary endpoints and categorical grading was employed to report hypomagnesemia using the Common Terminology Criteria for Adverse Events (CTCAE) v.5 as percentages among graded groups.

**RESULTS:** A total of 67 preliminary records were retrospectively reviewed and only 48 patients on

EGFR-Is fit the criteria. Of those 48 patients on EGFR-Is, 23 (48%) were exposed to a PPI during treatment with 17 (73%) of patients exposed compared to 15 (60%) patients in the unexposed with incidence of hypomagnesemia (95% CI: P=0.31). The average time to hypomagnesemia was shorter in the exposure group (126 days) compared to unexposed to PPIs (203 days). The exposure group also had 48% of their population compared with only 24% of the unexposed needing magnesium supplementation. There were an increased IV supplementation needs totaling an average of 5.37 grams of magnesium needed compared to 3.6 grams if IV magnesium in the exposed compared to unexposed group. For hypomagnesemia grading, approximately 70% of patients exposed compared to 52% of patients unexposed were grade 1, 4% compared to 8% respectively who were grade 2, and no incidence of grade 3 through 5 was recorded.

**CONCLUSION:** The incidence of hypomagnesemia associated with concurrent PPI exposure in patients treated with cetuximab and panitumumab was not significant. The secondary endpoints show clinical practice concerns as they demonstrated an increased magnesium supplementation needs and sooner time to hypomagnesemia in the exposed group. These outcomes could lead to further consideration on the appropriateness of pre-emptive magnesium supplementation in patients on EGFR-Is who might also be getting concurrent PPIs in the future.

## VII-A: TRANSITIONS OF CARE

### PL VII-1

#### **RATE OF ANTIPSYCHOTIC MEDICATION INITIATION AND POTENTIALLY UNNECESSARY CONTINUATION POST DISCHARGE: A REVIEW OF CARE FROM A 425-BED ACADEMIC MEDICAL CENTER**

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**PURPOSE:** The purpose of this process improvement project is to analyze the incidence of patients that are initiated on an antipsychotic medication during hospitalization and continued throughout their hospital stay to include discharge and identify areas of improvement to prevent potentially unnecessary long-term antipsychotic medication use.

**METHODS:** A retrospective chart review was performed at one large academic medical center.

Patients were identified by using electronic medical record (EMR) medication reports from the time period of April 1, 2021 to September 30, 2021. Patients were included if they were 18 years of age and older and had been prescribed an antipsychotic medication during their inpatient hospitalization. Patients were excluded if they were prescribed home antipsychotic medications, died prior to discharge, admitted to a psychiatric service or initiated on psychoactive therapy for an indication of a primary mood or psychotic disorder (e.g. bipolar disorder, schizophrenia, schizoaffective disorder, etc). The primary outcome is the percentage of patients initiated and potentially unnecessarily continued at the point of discharge. Potentially unnecessary prescribing was defined as continuation of the antipsychotic initiated during hospitalization for acute treatment of delirium, agitation, or insomnia without planned taper or reason for continuation or clear indication. Secondary outcomes included location of initiation within the hospital, location of discharge, admission diagnosis, antipsychotic indication, medication prescribed, intubation status, survival to discharge, drug-drug interactions of those continued, EKG monitoring, utilization of psychiatric services, and the credentials of the prescribing provider. Data was analyzed utilizing descriptive statistics.

**RESULTS:** A total of 204 patients received an antipsychotic medication during the identified time period. 105 patients were excluded from this study (67 were continuing a home medication, 5 pediatric patients, 12 were admitted for a psychiatric condition or prescribed antipsychotics for a new psychiatric diagnosis, and 21 died prior to discharge). Of the 99 patients that were included, results showed 19 (19.2%) were potentially unnecessarily continued with an antipsychotic at hospital discharge. The most commonly continued antipsychotic at discharge was quetiapine (43.6%). Psychiatric services were consulted in 33 patients (33.3%) and 27 patients (27.2%) were intubated

**CONCLUSION:** Patients being managed for acute condition such as delirium or agitation with an antipsychotic were found to be potentially unnecessarily continued on that therapy 19.2% of the time. Potential ways to reduce unnecessary prescribing upon discharge is to implement required indication fields, stop dates, or tools for thorough medication reconciliation upon transitions of care.

**PL VII-2**  
**CORRELATION OF EMERGENCY SEVERITY INDEX AND MEDICATION RECONCILIATION DISCREPANCIES IN A COMMUNITY TEACHING HOSPITAL**

Brianne Braaten, Trager Hintze, Jongwha Chang, Jessica Jones, Nephry Samuel, CHI St. Joseph Health, Bryan, TX.

**PURPOSE:** To determine if the Emergency Severity Index (ESI) given to a patient in the Emergency Department (ED) upon admission correlates to discrepancies in the medication reconciliation process. Medication reconciliation services had previously been completed by nursing staff due to limited pharmacy resources. The Emergency Severity Index (ESI) is a tool developed by the Agency for Healthcare Research and Quality to determine the resources needed and acuity of the patient.

**METHODS:** Using retrospective data from the institution's electronic medical record, discrepancies between the home medication reconciliation performed by the ED nurse and the medication reconciliation performed by pharmacy personnel were compared. The primary objective of this study was to determine the correlation between the ESI score of a patient and discrepancies that pharmacy personnel (pharmacists, residents, interns) identified during a medication reconciliation. Secondary outcomes included the types of errors (omission, additional medications, wrong dose/frequency/strength), changes to allergy information and preferred outpatient pharmacy, time to complete medication reconciliation for pharmacy, and if the number of discrepancies is higher based on: number of medications the patient is on, chronic disease state of patients, number of high risk medications the patient is on (insulin, opiates, antiepileptics and anticoagulants), and which unit of the hospital the patient was admitted to.

**RESULTS:** An analysis of 96 patients was performed. The mean age of the patients was  $62.48 \pm 17.79$  years old (range 18 to 94 years old) and the percentage of male patients was 46.88% (n=45). The average total number of medications found was 7.7 medications and the average amount of time to complete a medication reconciliation by pharmacy personnel was 18 minutes. There was not a statistically significant difference observed in the primary outcome of the ESI to discrepancies found in the medication reconciliation ( $p=0.567$ ). Of note, high risk medications had more

discrepancies, which was statically significant ( $p=0.012$ ). Patients with a history of coronary artery bypass graft also had a statistically significant higher number of errors ( $p=0.001$ ).

**CONCLUSION:** Based on the results of this study, we found no correlation between the ESI and the number of errors on medication reconciliation. We did find that patients on a high risk medication were more likely to have a discrepancy. We plan to have pharmacy personnel focus medication reconciliation services on patients with high risk medications (insulin, opiates, antiepileptics and anticoagulants). Other community hospitals with limited pharmacy resources could consider focusing medical reconciliation services on patients with high risk medications.

**PL VII-3**  
**IMPACT OF NURSING EDUCATION ON THE DOCUMENTATION RATES OF ANTICOAGULATION EDUCATION**

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**PURPOSE:** One of the Joint Commission National Patient Safety Goals for anticoagulation specifies to provide adequate education to patients and caregivers. Non-adherence with anticoagulation therapy significantly increases the risk of patient harm and adverse drug events, such as bleeding or clotting. Per Joint Commission, patients and caregivers should be counseled on adherence, dose, drug/food interactions, risks, and need for follow-up appointments or laboratory tests. Education has been shown to improve clinical outcomes and decrease hospital length of stay, number of hospitalizations, adverse events associated with anticoagulation, and healthcare costs. Currently, education on anticoagulation is not tracked or effectively documented at MD Anderson, indicating need for improvement. The purpose of this quality improvement project was to increase documentation of anticoagulation education provided to patients on surgical units that are newly started on anticoagulation therapy by 30% by March 2022.

**METHODS:** Data was collected retrospectively through the institutional electronic health record. Information related to new anticoagulant prescriptions, home medications, and documented instances of nursing-provided education from January 2021-June 2021 was analyzed as baseline data. Additionally, a survey was administered in September

2021 to nursing staff to assess baseline confidence in providing counseling on anticoagulants related to administration, interactions, dosing, duration, and adverse effects. Education sessions for nursing related to counseling points and appropriate documentation processes were completed by January 2022. Nurses were instructed to begin documenting education within the OneConnect Education tab. To further increase compliance, Anticoagulation Education nursing orders have been incorporated into provider order sets, which automatically generates a worklist task for nursing staff regarding the education. A final data analysis will be completed in March 2022 to assess the overall change in documentation rates of anticoagulation education as well as nursing confidence in provided said education.

**RESULTS:** A baseline analysis was conducted on the documentation rates of anticoagulation on three surgical units for a 6-month period from January 2021 through June 2021. Baseline results indicated that 788 patients were newly started on anticoagulant therapy. Of these, 7 instances of education were appropriately documented within OneConnect. 24 nurses elected to participate in the pre-intervention survey related to nursing confidence in providing anticoagulation education. Baseline survey results indicated that 75% strongly agreed that they were confident in providing the education; however, only 25% indicated that they appropriately document the education within OneConnect. When asked about specific components of anticoagulation education, 44% of participants were unfamiliar with recommended durations of anticoagulation therapy, 36% were unfamiliar with drug interactions for commonly used agents, 32% were unfamiliar with dose adjustments for enoxaparin, and 24% were unfamiliar with dosing recommendations for common indications. Post-implementation data is pending.

**CONCLUSION:** Pending analysis of post-implementation data.

#### PL VII-4

##### **EVALUATING PRESCRIBERS' BARRIERS TO UTILIZING PHARMACISTS IN THE ADMINISTRATION OF LONG-ACTING INJECTABLE ANTIPSYCHOTICS IN THE COMMUNITY SETTING.**

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**PURPOSE:** In states where allowed, pharmacists can collaborate with prescribers to administer long-acting injectable antipsychotics (LAIA) in the community setting for the management of schizophrenia and bipolar disorder. The primary objective of this study is to identify the barriers prescribers may have to utilizing a community-based pharmacist for LAIA administration. The secondary objective is to find strategies to overcome the identified barriers.

**METHODS:** This is a prospective survey-based study which was granted exemption by the Texas A&M Investigational Review Board. Data collection began in January 2022 using Qualtrics and is anticipated to end by March 2022. Survey participation is voluntary and anonymous. The study population includes licensed prescribers across the United States, while providers without LAIA prescriptive authority in their state of practice, and providers not treating patients with bipolar disorder or schizophrenia are excluded.

**RESULTS:** Data collection for this study is ongoing. Out of 14 surveys that have been completed, 6 surveys were excluded because 3 respondents did not treat patients with schizophrenia or bipolar disorder, 2 signed the informed consent without answering any survey questions, and 1 respondent was a pharmacist. Preliminary results reveal that all 3 prescribers who have previously/currently collaborate with community pharmacies for LAIA administration would recommend this service to other providers. 29% of prescribers believe utilization of this service may decrease the overall follow-ups with their patients, and 43% would prefer administering the medications at their office/clinic. These could be major barriers resulting in the low utilization of this service. Other potential barriers identified include the concern for pharmacy workload during the pandemic, not having a point of contact at the pharmacy, and prescribers not being familiar with the service. All data will be statistically evaluated using descriptive statistics once data collection is complete.

**CONCLUSION:** Conclusion to be presented following completion of data collection and analysis.

#### PL VII-5

##### **EVALUATION OF THE INAPPROPRIATE CONTINUATION OF PROTON PUMP INHIBITORS AND HISTAMINE-2-RECEPTOR ANTAGONISTS IN HOSPITALIZED PATIENTS**

## **FOR STRESS ULCER PROPHYLAXIS AT DISCHARGE.**

Rebecca L. Deville, Giang P. Dinh, Melchor Jose L. Espinosa, Nhi T. Figueroa, Brittany D. Flynt, Brian R. Olivares, Nathalie Quach, Christina Q. Tran, CHRISTUS Santa Rosa Hospital – Westover Hills, San Antonio, TX

**PURPOSE:** Proton pump inhibitors (PPIs) and histamine-2-receptor-antagonists (H2RAs) are often over-utilized in hospitalized patients for stress ulcer prophylaxis (SUP), which can lead to the inappropriate continuation of these agents at discharge. Concerns with the inappropriate initiation and continuation of SUP include increases in healthcare costs and adverse events. The objective of this study is to evaluate the prevalence of inappropriate continuation of PPIs and H2RAs for SUP in hospitalized patients at discharge.

**METHODS:** This single-center, retrospective chart review was approved by the Institutional Review Board (IRB). Electronic medical records of hospitalized adult patients who received a PPI and/or H2RA between August 1st, 2019 and August 31st, 2021 were reviewed for the continuation of therapy upon discharge from the hospital. Inclusion criteria consisted of adults 18 years or older and those receiving at least 48 hours of PPI and/or H2RA therapy during the hospital stay. Exclusion criteria consisted of: home use of PPI or H2RA, H2RA use for hypersensitivity reactions, or use of PPI and/or H2RA for the treatment of gastrointestinal disorders. The primary outcome of this study is patients who are inappropriately continued on PPIs and H2RAs for SUP at discharge. The secondary outcome was the duration of PPI and/or H2RA therapy in the hospital prior to discharge.

**RESULTS:** A total of 578 patient records were reviewed with 250 patients meeting inclusion criteria. Of the patients excluded, 194 (59.1%) patients listed a PPI or H2RA as a home medication upon admission. For the primary outcome, 67 (26.8%) patients were inappropriately discharged on SUP with either famotidine (n=195; 78%) or pantoprazole (n=55; 22%). For the secondary outcome, patients who were inappropriately discharged on SUP received a median of 6 days of acid suppression therapy, while those in which SUP was appropriately discontinued at discharge received a median of 5 days of therapy.

**CONCLUSION:** These study findings conclude that more than 25% of patients are being inappropriately continued on SUP at discharge from the hospital. The results of this evaluation will be used to reinforce appropriate prescribing patterns at CHRISTUS Santa Rosa -Westover Hills through provider education and will re-emphasize the importance of our current pharmacy-driven PPI/H2RA reduction protocol. These results also provide insight on a gap in care that could be bridged with a transitions-of-care (TOC) pharmacist who is involved with the discharge planning process and could play a role in decreasing the inappropriate prescribing and continuation of SUP upon discharge.

## **VII-B: Safety/Operations**

### **PL VII-6**

#### **EVALUATE THE BENEFITS OF FACILITY-BASED ANTIMICROBIAL STEWARDSHIP SCREEN ON UTILIZATION OF BROAD-SPECTRUM ANTIBIOTICS**

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**PURPOSE:** To assess the utilization of broad-spectrum antibiotics at the facility after recent implementation of stewardship screen. During physicians' order entry, the risk of multidrug resistant infection will be calculated and a smart prompt will alert physician to consider a standard spectrum antibiotic if the risk is less than <10%.

**METHODS:** High-level stewardship data from the first 7 months after implementation, June to December 2021, was collected and compared with data of the same months in 2019. The data of interest include antimicrobials spend per adjusted patient day, antimicrobial use per 1000 patient days, and standardized antimicrobial administration ratio (SAAR).

**RESULTS:** The smart alert implementation resulted in reduction in antimicrobials spend per adjusted patient day. Compared to 2019, spending was lower in all months except July and October 2021. Monthly average from June to December 2021 was \$4.12 and average was \$4.27 over same time period in 2019 (p = 0.41). A shorter duration of antimicrobial therapy per 1000 patient days were observed for both antipseudomonal (166 vs. 172 days, p = 0.17) and anti-MRSA agents (66 vs. 77 days, p = 0.03). For antipseudomonal antibiotics, shorter duration of

therapy was observed in all months in 2021 except September and October. For anti-MRSA agents, shorter duration was observed in all month except July. Compared to 2019, SAAR was lower in all months in 2021 except June. There was a slightly downward trend observed throughout the months in 2021.

**CONCLUSION:** Based on our data analysis, the implementation of antimicrobial stewardship screen results in improvement in antimicrobial utilization at the facility.

**PL VII-7  
THE EFFECTS OF LIPOSOMAL  
BUPIVACAINE ON PATIENT LENGTH OF  
STAY AND OPIOID USE STATUS POST  
COLRECTAL SURGERY.**

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**PURPOSE:** To evaluate the effect of liposomal bupivacaine on patient length of stay and opioid utilization during recovery from colorectal surgery at a community hospital.

**BACKGROUND:** Exparel is a liposomal formulation of the amide-type local anesthetic bupivacaine that blocks the generation and conduction of nerve impulses. The pharmacokinetics of liposomal bupivacaine exhibits an extended half-life and a potentially longer duration of analgesia in comparison to non-liposomal formulations. Exparel has an analgesic effect that can last up to 72 hours after administration, resulting in a reduced need for opioids during post-operative recovery. Exparel is a high cost medication that adds a financial burden to both the patient and the health-system.

**METHODS:** A retrospective cohort analysis of 106 patients who underwent colorectal surgery between the dates of 12/01/2016 to 07/15/2021 was performed. Eligible patients were identified using a report generated from medical records that captured patients who received Exparel during the specified timeframe. These patients were compared to an internal demographic report based on the colorectal ICD-10 diagnosis code Z90.49. Patients were included if they are 18 or older, diagnosed with ICD-10 code of Z90.49, and underwent one of the following procedures: colectomy, hemicolectomy, partial colectomy, resection of colon, sigmoid colectomy, or total colectomy. A control group was selected from the

same timeframe which consisted of patients who underwent similar colorectal procedures, but did not receive a localized injection of liposomal bupivacaine. Once patients were identified, their profiles were accessed and their medical records examined for data to evaluate for differences in patient length of stay and opioid use after surgery. Length of stay was measured by subtracting the date of admission from the date of discharge and adding one day. Patient reported numeric pain scores on a scale of 1-10 were averaged, and then the values from each cohort were averaged and compared. All doses of opioid analgesics administered after patients were transferred from the post anesthesia care unit were converted to morphine milligram equivalents (MMEs). MMEs were then totaled, and the cohort median values were identified.

**RESULTS:** There were 106 total patients divided between two cohorts of 53 patients. The experimental cohort was comprised of patients who received Exparel during their procedure, and the Standard of Care (SoC) cohort was comprised of the patients who received either bupivacaine or ropivacaine solution. For both cohorts, the median length of stay was four days. The average reported pain scale for the Exparel cohort was 5.09, whereas the average for the SoC cohort was 4.78. The median MMEs utilized by the Exparel cohort was 40 compared to an average of 90 MMEs utilized by the SoC cohort.

**CONCLUSIONS:** There was no difference in median length of stay between the Exparel cohort and the SoC cohort. The Exparel cohort reported a higher average pain rating than the SoC cohort, but had a lower median MME utilization compared to the SoC cohort.

**PL VII-8  
EVALUATION OF A MULTIMODAL PROTON  
PUMP INHIBITOR DEPRESCRIBING  
PROGRAM**

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Medical Center, Austin, TX.

**PURPOSE:** Both the efficacy and safety profile of proton pump inhibitors (PPI) may have contributed to overprescribing in both the inpatient and outpatient setting. More recent data, however, have implied that much of this use is inappropriate. Additionally, PPI usage has been linked to increased incidence of *Clostridioides difficile* (C. diff) infection and pneumonia. There has been an upward trend in PPI prescribing at St. David's Medical Center since 2019. The purpose of this analysis is to review the impact of

clinical decision support, provider education and pharmacist intervention per protocol on PPI usage, C. diff infection rate, and prescribing habits.

**METHODS:** Adult patients who had an order for any PPI before, during and after the implementation of the multimodal PPI deprescribing program will be reviewed. The primary outcome of the study is the total days of PPI therapy per 1000 patient-days for the whole facility. Other measurements include total number of PPI doses and total number of positive C. diff toxin assay per 1000 patient-days in the facility. Further data collection on a subset of PPI therapy patients will be carried out to identify prevalence data and prescribing habits in the pre and post-implementation of the PPI deprescribing program. Descriptive and/or inferential statistics will be used where appropriate.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL VII-9

##### **IMPACT OF IMPLEMENTATION OF PHARMACIST-DRIVEN ORDERING OF POST-OPERATIVE ANTIBIOTIC FOR PATIENTS UNDERGOING OPEN-HEART SURGERY**

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**BACKGROUND:** Procedures such as coronary artery bypass graft and/or valve replacement that require a sternotomy increase the likelihood of a patient experiencing a surgical site infection. This complications from cardiac surgery increases the risk of morbidity and mortality in patients. Prophylactic antibiotics for cardiac surgery have been proven to prevent surgical site infections when administered perioperatively. In an effort to reduce post-operative antibiotic prescribing errors, CHRISTUS Mother Frances Hospital implemented an automatic pharmacy consult to order post-operative antibiotics according to a physician approved protocol which was implemented in October 2020.

**PURPOSE:** To determine if the implementation of a pharmacist-driven ordering process for post-operative antibiotic is associated with a reduction in medication errors.

**METHODS:** A retrospective cohort analysis of adult patients undergoing open-heart surgery from July to

September 2020, prior to the pharmacist-driven ordering protocol implementation, and from January to March 2021, after the protocol was implemented. The primary outcome was to analyze the medication error rate defined as any of the following: wrong medication, wrong dose, inappropriate duration, and inappropriate timing from antibiotics received in the operation room. The secondary outcome included the number of patients with sternal wound infection within 6 months after date of sternotomy.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

### **VIII-A: Ambulatory Care**

#### PL VIII-1

##### **UTILIZATION OF CONTINUOUS GLUCOSE MONITORING IN OLDER ADULT PATIENTS WITH TYPE 2 DIABETES MELLITUS.**

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**PURPOSE:** To determine if using a continuous glucose monitoring (CGM) system is associated with improved A1c levels in older adult patients with type 2 diabetes mellitus (T2DM).

**BACKGROUND:** Uncontrolled T2DM can exacerbate issues that impact many older adult patients, including increasing the risk of premature death, functional disability, accelerating muscle loss, exacerbating coexisting illnesses, worsening polypharmacy, and increasing fall risk. Due to the potential for increased risk of adverse sequelae from hypo- or hyperglycemia in older patients and growth in mobile health technology, the ability to provide closer monitoring of blood glucose through CGM in these patients is appealing. While CGM systems have been demonstrated to improve glycemic control and reduce the risk of adverse events in younger patients with T2DM, few studies have assessed their utility exclusively in older adult patients.

**METHODS:** This is a prospective self-controlled study utilizing a pre-post pragmatic study design. Eligible subjects were identified through an electronic health record (EHR) query from October 1, 2020 through September 30, 2021. Inclusion criteria include

age  $\geq 65$  years, at least one appointment with a Family Medicine or Internal Medicine provider during the query timeframe, an ICD-10 diagnosis of T2DM, and prescription for prandial insulin. Patients were excluded if they were wards of the state, utilizing a CGM device before the start of the study, prescribed less than three injections of insulin daily, or had documented cognitive impairment precluding them from demonstrating appropriate use of a CGM device. The primary outcome is the change in A1c before initiation of a CGM device and at 3 months following initiation. Secondary outcomes include A1c at 6 months following initiation of a CGM device, time-in-therapeutic range, average glucose, Glucose Management Indicator, other pertinent CGM metrics, total daily dose of insulin prescribed, and change in symptoms of hypoglycemia reported by the patient. Descriptive statistics will be used for the analysis of patient characteristics. For the primary outcome and other ordinal data, a Wilcoxon Signed Rank test will be utilized as appropriate. A McNemar test will be used to compare nominal variables. A sensitivity analysis will be performed on patients who have low sensor utilization.

**RESULTS:** 200 subjects were identified, 74 subjects met inclusion criteria, and 50 patients were eligible for enrollment in the study. Subject recruitment is ongoing. Additional research results are in progress.

**CONCLUSION:** Research in progress.

#### PL VIII-2

##### THE IMPACT OF A PHARMACIST-LED KETOGENIC WEIGHT LOSS PROTOCOL IN A COMMUNITY PHARMACY SETTING

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**PURPOSE:** The purpose of this study is to evaluate the impact of a pharmacist-led ketogenic weight loss program in a community pharmacy setting.

**BACKGROUND:** Obesity is a complex disease state that is typically said to occur when energy intake exceeds energy expenditure; however, this definition of obesity is an oversimplification. Many factors play a role in obesity, including genetics, environment, lifestyle factors, hormonal imbalance, and the gut microbiome. In the United States, the prevalence of obesity continues to rise with 42.4% of adults are obese and 9.2% are severely obese. Moreover, obesity

has been associated with an increased risk of several comorbidities, including hypertension, type 2 diabetes mellitus, cardiovascular disease, osteoarthritis, and certain cancers. Diet and lifestyle modification have been a mainstay of obesity management for decades; however, there has not been a specific diet that has shown more benefit than another. Many programs provide education and counseling on diet, physical activity, and behavioral therapy designed to lose and maintain 5-10% of total body weight. Based on the Action for Health in Diabetes (Look AHEAD) trial, patients who lost and maintained 7% weight loss demonstrated clinical benefit in reducing triglycerides, systolic blood pressure, HBA1C, fasting blood glucose, and increasing high-density lipoprotein. Unfortunately, diet and lifestyle modification education rarely occur due to time constraints, limited access to resources, and low provider reimbursement. Community pharmacists are in a unique position to fill in the gap of obesity management.

**METHODS:** In this retrospective review, charts will be reviewed from patients enrolled in our ketogenic weight-loss program at an independent community pharmacy in Denton, TX from January 2021 to December 2021. Key inclusion criteria include patients over the age of 18 who are overweight (BMI: 25-29.9) or obese (BMI $>30$ ). The primary outcome is the achievement of 5% total body weight loss from baseline. Secondary outcomes include achievement of 10% total body weight loss from baseline, mean percent reduction in weight loss, reduction in anthropometric measurements (arm, chest, waist, hips, thigh), reduction in body fat, and change in BMI from baseline. For the primary outcome and secondary outcomes, a Wilcoxon Sign-Rank test will evaluate statistical significance. A P value of less than 0.05 was considered to indicate statistical significance.

**RESULTS:** In progress.

**CONCLUSION:** In progress.

#### PL VIII-3

##### IMPACT OF AN INTERDISCIPLINARY HEART FAILURE CLINIC VERSUS STANDARD INPATIENT HOSPITAL CARE ON PATIENT OUTCOMES

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**PURPOSE:** A previous study at a hospital in West Central Texas showed a slight increase in heart failure (HF) related hospital readmissions amongst patients managed in an interdisciplinary HF-clinic versus hospital patients with no focused HF-clinic follow-up. The study also showed an increase in all-cause readmission amongst HF-clinic patients, but the mortality rate amongst HF-clinic patients was significantly lower than patients with no HF-clinic visit. The purpose of this study is to investigate the impact the HF-clinic has had on patients' overall hospital length of stay after being readmitted for acute decompensated heart failure versus those not followed in the HF-clinic.

**METHODS:** The hospital utilizes an electronic medical records software for all its inpatient and outpatient services. Data is being collected for HF-clinic patients from January 1, 2016 to January 1, 2021. The data collected from these patients will be reviewed from the time of admission to the HF-clinic to subsequent visits within a 12-month period. Data from a matched cohort of HF patients who received standard inpatient care but no HF-clinic referral will be reviewed in comparison. The data collected includes patient demographics, comorbidities, NYHA HF class, prior hospitalizations, emergency department visits, primary residency, pertinent labs and vitals, inpatient and discharge medications, length of stay, requirement for ICU stay, and insurance status. Data amongst both groups will be matched by age, gender, HF severity, comorbidities, and any other pertinent information.

**RESULTS:** In progress

**CONCLUSION:** In progress

#### PL VIII-4

#### FLU VACCINATION PERCEPTIONS IN THE CONTEXT OF THE GLOBAL COVID-19 PANDEMIC

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**BACKGROUND:** As of January 2022, 44.3% of the adult United States population has been vaccinated against the flu, a decrease from 52% in the past two years. Historically, surveys on vaccine perceptions in the United States have shown disparities in opinions based on factors such as race, socio-economic status, and political views. These opinions have likely

changed in light of the ongoing SARS-CoV-2 (COVID-19) pandemic, the 2021-2022 influenza season, the post-2020 election climate, and the many information sources, with varying degrees of credibility, available to the general public.

**OBJECTIVE:** The objective of this survey-based study is to evaluate influenza vaccine perceptions and vaccine-related behaviors in the context of the COVID-19 pandemic. Survey data will be used to identify vaccine-hesitant population subgroups and may further be used to revise and improve approaches to influenza vaccine education strategies for these at-risk populations. These findings may further assist pharmacists in their vaccination efforts.

**METHODS:** This is a questionnaire-based study made available at select pharmacy locations in the Houston, Texas area. Walgreens pharmacy locations in the Texas Medical Center and in the greater Houston area were chosen to target a diverse group of respondents. Flyers with a Quick Response (QR) code and link to the survey were made available at pharmacy counters or were attached to medication bags. The survey is based on the World Health Organization (WHO) Strategic Advisory Group of Experts (SAGE) Working Group on Vaccine Hesitancy. It includes ten dichotomous questions focused on demographics and vaccine behaviors, and ten Likert-scale questions on vaccine perceptions and education sources. Full data analysis will be started after inactivation of the survey mid-March 2022.

**RESULTS:** As of March 5, 2022, 130 surveys have been completed. Demographics show that a majority (72%) of the survey respondents are between 18 and 35 years old, with 64% of participants identifying as female. For race or ethnicity, 32% of respondents identify as Caucasian, 35% as Asian, 14% as Hispanic, and 12% as African American. Most participants (67%) have a household income higher than \$50,000, and 85% of them have at least some college education. The younger age, higher income and higher education may be explained by the location of the pharmacies where surveys were disseminated; these were mostly specialty pharmacy sites located inside or near academic hospitals. This may also explain positive vaccine behaviors with a high COVID-19 vaccination completion at 96%. The majority of participants (73%) received their influenza vaccines before the pandemic, and 76% received their flu vaccine after the pandemic started. For the current 2021-2022 flu season, 84% of participants received or plan to receive their flu

vaccines. Most of the participants agree that the influenza vaccine is important for their own health and health of others, and that this vaccine is needed even though influenza is not as common as COVID-19. The participants do not show an increased trust or higher likeliness to receive a flu vaccine, but these observations were high at baseline. The majority of respondents disagree that their beliefs and culture guide their decisions about vaccines. Finally, most respondents know where to find reliable information about vaccines, are neutral towards government information resources, and most consider pharmacists to be reliable resources for their vaccine questions. Limitations of this study include the small sample size and a respondent base that may include a majority of health care workers.

**CONCLUSION:** While further data analysis is needed to identify vaccine-hesitant population subgroups, preliminary results of this survey show an overall increase in influenza vaccinations or intent compared to the past two flu seasons. This contradicts a decrease of flu vaccinations in the general population as reported by the CDC thus far. In this study, pharmacists are perceived as trustworthy resources for vaccine information. Further data analysis and literature review may provide a helpful tool for them to identify vaccine-hesitant populations and increase flu vaccine completion rates.

#### PL VIII-5

##### **DIRECT ORAL ANTICOAGULANTS VERSUS WARFARIN IN MORBIDLY OBESE PATIENTS WITH ATRIAL FIBRILLATION OR VENOUS THROMBOEMBOLISM.**

Haley Tierce, Kathleen Lusk, Amanda Kitten, Christina Long, University of the Incarnate Word Feik School of Pharmacy, San Antonio, TX.

**PURPOSE:** To determine the efficacy and safety of direct oral anticoagulants (DOACs) in severely obese patients with nonvalvular atrial fibrillation (AF) or venous thromboembolism (VTE) compared to warfarin.

**METHODS:** This was a single-center retrospective cohort study. Patients were included if they were severely obese (BMI >40kg/m<sup>2</sup> or weight >120kg) and received a DOAC or warfarin for VTE treatment or prevention of stroke and systemic embolism in nonvalvular AF during hospitalization or an emergency department visit from January 1, 2016 to January 1, 2020. The primary endpoint was treatment

failure defined as recurrent VTE, stroke, transient ischemic attack, or systemic embolism within 1 year of anticoagulation initiation. Secondary endpoints included a composite of major bleeding rates and clinically relevant non major bleeding (CRNMB) rates as defined by International Society of Thrombosis and Haemostasis criteria. Dosing strategies for each agent at therapy initiation were also analyzed as a secondary endpoint.

**RESULTS:** A total of 73 patients were included in the final analysis consisting of 43 patients in the DOAC arm (apixaban [n=33], rivaroxaban [n=10]) and 30 patients in the warfarin arm. Forty-three patients received anticoagulation for VTE treatment while 30 patients received anticoagulation for prevention of stroke and systemic embolism in the setting of nonvalvular AF. There was no statistically significant difference in the rate of treatment failure between the DOAC and warfarin groups (4.7% vs 6.7%; p=0.710). Although not statistically significant, major bleeding and CRNMB occurred less frequently in patients receiving DOACs compared to warfarin (9.3% vs 23.3%; p=0.099). Use of non-recommended dosing was more common in the apixaban group compared to the rivaroxaban group.

**CONCLUSION:** In patients with a BMI >40 kg/m<sup>2</sup> or weight >120 kg, DOACs (apixaban, rivaroxaban) appear to have similar efficacy compared to warfarin for VTE treatment or prevention of stroke and systemic embolism in nonvalvular AF. DOACs may be associated with a decreased risk of bleeding compared to warfarin in morbidly obese patients, but larger prospective studies are needed to confirm.

#### PL VIII-6

##### **IMPACT OF EMBEDDED CLINICAL PHARMACISTS IN GENERAL INTERNAL MEDICINE (GIM #2000) AMBULATORY CLINIC ON THE DIABETIC POPULATION**

Daniel E. Berger

**PURPOSE:** Pharmacists play a critical role in the management of diabetes within ambulatory medicine. The purpose of this study is to affirm previous ambulatory care results supporting pharmacist significance on patient outcomes, specifically hemoglobin A1c, low-density lipoprotein (LDL), blood pressure and hospitalizations. Currently, there is one pharmacist full-time equivalent (FTE) covering approximately 150 diabetic patients within the general internal medicine (GIM) clinic at University of Texas

Southwestern Medical Center (UTSW). The goal of this study is to help promote the value of pharmacy and expand pharmacy services within the ambulatory clinic setting.

**METHODS:** This retrospective cohort study will use Epic patient electronic medical charts from 07/01/2020 to 12/31/2021. The first cohort will include patients managed without pharmacist collaboration from 07/01/2020 to 12/31/2020; and the second cohort will include patients managed by a pharmacist from 07/01/2021 to 12/13/2021. Inclusion criteria includes patients who are 18 years of age or older with type 2 diabetes seen in the GIM clinic between these specified dates. The included patients must also have a hemoglobin A1c drawn before and after intervention in each cohort. Exclusion criteria includes patients who are less than 18 years of age; patients who have established care with UTSW Endocrinology; if the pharmacist was unable to contact the patient; and/or if the patient died during intervention period.

Data will be collected utilizing the electronic medical record. Patient confidentiality will be maintained by using de-identified data for all patients. All names, date of birth, medical record numbers, or other identifiable features will be removed. The primary outcome is percent change in hemoglobin A1c. Secondary outcomes include change in LDL, blood pressure, weight, and incidence of hospitalizations.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

## VIII-B: Ambulatory Care

### PL VIII-7

#### OUTPATIENT WARFARIN MONITORING DURING COVID-19

Sarah L. Edwards, Suzanne K. Fry, Brandi M. Huf, Zahava L. Picado, Central Texas Veterans Health Care System, Temple, TX.

**PURPOSE:** After coronavirus disease 2019 (COVID-19) restrictions were enacted at Central Texas Veterans Health Care System (CTVHCS) on March 13, 2020, monitoring practices for Veterans on warfarin and adverse drug events (ADEs) may have been affected. We sought to compare time in therapeutic range (TTR) and ADEs with warfarin one

year before and one year during COVID-19 at a Veterans Affairs (VA) facility.

**METHODS:** Using data retrospectively collected from the institution's electronic records, we compared average TTR and number/severity of recorded ADEs for Veterans on warfarin one year before versus one year after March 13, 2020.

**RESULTS:** An analysis of 321 patients was performed. Average age was 70 years (standard deviation [SD]±11.2); 94.4% were male and 5.6% were female. In the pre-COVID-19 timeframe (March 13, 2019 to March 12, 2020), the average TTR was 71.57% (SD±0.17) with an average of 24.0 days between International Normalized Ratio (INR) labs (SD±10.7) and 27 ADEs were reported (13 mild severity, 6 moderate severity, 8 severe severity). In the COVID-19 timeframe (March 13, 2020 to March 12, 2021), the average TTR was 69.81% (SD±0.18) with an average of 27.3 days between INR labs (SD±15.1) and 18 ADEs were reported (14 mild severity, 1 moderate severity, 3 severe severity). Of note, of the initial 411 patients identified according to inclusion and exclusion criteria, 83 patients were converted to a direct oral anticoagulant (DOAC) during the COVID-19 timeframe and were therefore excluded from the analysis.

**CONCLUSION:** Based on the results of this quality improvement project, it may be reasonable to extend days between INR labs for patients on warfarin, especially during pandemic surges when considering exposure risks. Though average number of days between INR labs increased from 24.0 to 27.3 from before to during COVID-19, TTR remained relatively unchanged in this Veteran patient population (71.57% versus 69.81%; -1.76% difference) and above the generally accepted 65% TTR cutoff for suboptimal therapy. Additionally, reported ADEs decreased in number and severity during the first year of COVID-19 restrictions (27 versus 18 events total, and 14 versus 4 moderate/severe events).

### PL VIII-8

#### ASSESSING DIFFERENCES IN CLINICAL OUTCOMES IN PATIENTS CONVERTED FROM LIRAGLUTIDE TO SEMAGLUTIDE

Marissa Snider, Christine Wicke, Chantal Weiss, Olivia Collado, Central Texas Veterans Health Care System (CTVHCS), Temple, TX.

**PURPOSE:** Current diabetes guidelines recommend the use of a GLP-1 agonist in adults with or at high risk of ASCVD, CKD, or compelling need to minimize hypoglycemia or promote weight loss. Current literature from the SUSTAIN-10 trial has shown that weekly semaglutide may be superior to daily liraglutide in glycemic control and weight loss. This quality improvement project will look at clinical outcomes such as glycemic control, changes in weight, tolerability, and compliance between previous formulary GLP-1 agent, liraglutide, compared to current formulary agent, semaglutide.

**METHODS:** This retrospective quality improvement project will evaluate glycemic control in diabetic patients who received liraglutide and then were subsequently converted to semaglutide. Patients A1c measurements will be compared from baseline (prior to receiving any GLP-1 receptor agonist), 3-6 months after initiating liraglutide, and then 3-6 months after initiating semaglutide. Data collected between July 2019 to July 2021 will be limited to diabetic patients followed by an endocrinologist or PACT clinical pharmacy specialist at the CTVHCS who were initiated on liraglutide for at least 6 months and were subsequently converted to semaglutide and remained on the medication for a minimum of 6 months. A patient list will be gathered along with respective A1c measurements, weights (in kg), and fill history for the included patients. The fill history for the GLP-1 agonists will be used to calculate a medication possession ratio (MPR). A subsequent chart review will be utilized to identify gastrointestinal adverse reactions and discontinuation rates. Patients will be followed for 6 months after initiation of semaglutide or until discontinuation of semaglutide.

**RESULTS:.** An analysis of 76 patients was performed. The average A1c reduction after conversion from liraglutide to semaglutide was -0.19% (standard deviation [SD]  $\pm$  2.04%). The average change in weight after conversion from liraglutide to semaglutide was a decrease of -2.42 kg (SD  $\pm$  9.66 kg). 1 of 76 patients (1.32%) demonstrated non-adherence with semaglutide (as defined as an MPR <80%) while 6 patients (7.89%) demonstrated non-adherence with liraglutide during the study period. 6 of the 76 patients (7.90%) discontinued semaglutide due to gastrointestinal effects such as nausea, diarrhea, and upset stomach.

**CONCLUSION:** There were minimal improvements in A1c when converting from liraglutide to

semaglutide in our study population. However, there were a wide range of changes in A1c with some patients showing improvement and others showing worsening in A1c which is not unexpected as there are many other variables which may contribute to changes in A1c that are non-pharmacological such as diet and exercise which may confound the results. Semaglutide demonstrated a reduction in body weight which is consistent with other studies of this medication. Once-weekly semaglutide was associated with better adherence than its once-daily counterpart liraglutide. A small percentage of patients experienced gastrointestinal effects significant enough to warrant discontinuation of semaglutide with the most common symptoms being nausea and diarrhea.

#### PL VIII-9

#### EFFECTS OF INDAPAMIDE ON BLOOD PRESSURE CONTROL, ERECTILE DYSFUNCTION, ELECTROLYTE BALANCE AND URIC ACID LEVELS.

Amanda Charles, Erin Wunderlich, Samrat Shrestha, Mia Ta. Central Texas Veterans Health Care System, Temple, Texas

**PURPOSE:** The purpose of this quality improvement project is to evaluate blood pressure (BP) control with indapamide while also evaluating the extent of changes on potassium balance, and whether a decreased need for PDE-5 inhibitors and medications related to gout exists.

**METHODS:** This single-site, retrospective, quality improvement project will evaluate patients on indapamide for effects on BP, erectile dysfunction, electrolyte balance, and uric acid levels. A maximum of 200 patients from the Central Texas Veterans Health Care System who were initiated on indapamide from April 1, 2019 – April 1, 2021 will be included in this quality improvement project. Patients with a diagnosis of pulmonary hypertension or hypomagnesemia will be excluded. The total time frame for this project will be January 2019 – October 2021 based on the initiation dates of indapamide. Data will be collected through patient chart review and provided by pharmacy data analyst regarding blood pressure measurements 3 months before patient-specific initiation of indapamide and 6 months after. Patients with a concomitant prescription for a PDE-5 inhibitor and/or specified gout medications will have refill history and/or potassium and uric acid levels collected within the same time frame correlating with the initiation of indapamide.

**RESULTS:** An analysis of 137 patients was conducted to assess BP control after initiation of indapamide. Using the average of patient's BP before and after indapamide, an overall average in BP was determined. It showed an average systolic blood pressure decrease (SBP) of 9 mmHg (SD = 14 mmHg) and diastolic blood pressure (DBP) decrease of 4 mmHg (SD = 7). Due to various factors only 134 patients were included in the analysis for change in potassium and 15 patients for change in uric acid levels and number of PDE-5 refills. The overall average change in potassium levels, showed a decrease of 0.1 mmol/L (SD = 0.3 mmol/L). The limited sample size for the remaining secondary outcomes, showed uric acid levels decreased by 0.1 mg/dL and PDE-5 refills increased by 3.

**CONCLUSION:** Based on the data collected, indapamide has shown to provide adequate blood pressure control with a decrease in SBP and DBP seen on average in a majority of patients. The average change in potassium and uric acid was small, which corroborates current literature that indapamide has a more neutral effect on electrolyte balance and less likely to cause gout flares due to increased uric acid levels. Among the patients using PDE-5 inhibitors, there was no reduction in refills seen in this analysis.

#### PL VIII-10

##### EVALUATION OF STATIN-ASSOCIATED MUSCLE SYMPTOMS (SAMS) IN PATIENTS INITIATED ON STATIN THERAPY WHILE SIMULTANEOUSLY REPLETING VITAMIN D LEVELS AT A VETERANS AFFAIRS MEDICAL CENTER

Arnisha Carter, PharmD; Kristen Staggers, MS; Scott McDowell, PharmD, BCPS, BCACP, CDCES

**PURPOSE:** Statin-Associated Muscle Symptoms (SAMS) are the most frequently reported adverse events among patients treated with statins. SAMS commonly lead to undesirable outcomes such as: non-adherence, treatment discontinuation, and hesitancy to re-challenge statin use. In the absence of statin use, vitamin D deficiency has been identified as a risk factor for developing muscle-related complications including muscle weakness and myopathy. The purpose of this study is to determine the incidence of SAMS and treatment discontinuation in patients that are initiated on statins, with and without vitamin D supplementation.

**METHODS:** A retrospective chart review will be conducted including adult patients 18 years or older, receiving medical care at a Veterans Affairs Medical Center. A total of 408 patients (204 who are only on statin therapy and 204 who are on both statin therapy and vitamin D supplementation) will be randomly selected for chart review. Patients using a strong CYP3A4 inhibitor, fibrate therapy, or simvastatin 80mg will be excluded. In addition, patients who started vitamin D supplementation more than 30 days after starting statin therapy will be excluded from the study. Patient data will be collected through the Computerized Patient Record System (CPRS). Data collection points will include: age, gender, race, comorbidities, date of initiation of statin therapy and vitamin D supplementation, statin therapy and vitamin D supplementation used, adverse effects to statin therapy (including date of occurrence), adherence to statin therapy and vitamin D supplementation, reason(s) for discontinuation, vitamin D-25 OH lab result at baseline (within 30 days of statin therapy initiation) and at the time of adverse effects, date of discontinuation of statin therapy and vitamin D supplementation, and the date of last follow-up.

**RESULTS:** Pending

**CONCLUSIONS:** Pending

#### PL VIII-11

##### IMPACT OF LIRAGLUTIDE TO SEMAGLUTIDE CONVERSION ON GLYCEMIC CONTROL AND COST SAVINGS AT A VETERANS AFFAIRS MEDICAL CENTER.

Maijah Hardin, Fiona Imarhia, Chandler Schexnayder, Janeca Malveaux, Sylvester Agbahiwe, Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX.

**PURPOSE:** Semaglutide and liraglutide are glucagon-like peptide 1 receptor agonists (GLP-1 RAs) FDA-approved for patients with Type 2 Diabetes Mellitus (T2DM). As part of a National Lost Opportunity Cost (LOC) Savings Initiative, the Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC) converted patients with T2DM currently on liraglutide to semaglutide. Patients diagnosed with diabetic retinopathy and those without an ophthalmology exam in the past two years were not converted to semaglutide due to concerns of increased risk of diabetic retinopathy. The primary objective of

this project is to assess changes in glycemic control and cost savings that resulted from this conversion.

**METHODS:** This study was deemed a quality improvement (QI) project by the MEDVAMC Quality Assurance and Regulatory Affairs. Semaglutide-converted patients as well as those not converted due to lack of ophthalmic examinations in the last 24 months were identified. The overarching aim of this project is to provide and implement education to healthcare providers in order to transition all eligible patients on liraglutide to semaglutide. Following this intervention, the primary objective is to determine changes in glycemic control and cost savings that resulted from the transition. Secondary objectives include body weight differences and adverse effects. A review was completed to include veterans without retinopathy treated at MEDVAMC, whose conversion from liraglutide to semaglutide took place between March 2021 and November 2021. To assess glycemic control, HbA1c values three to twelve months following conversion between agents will be compared to HbA1c at baseline (time of conversion). Cost savings will be evaluated obtaining data from the institution's Outpatient Pharmacy Procurement. Highlighted elements of data collection include baseline characteristics, weight changes, modifications in T2DM regimen following conversion, adverse effects, and medication discontinuations. Veterans' health data was obtained from the institution's Computerized Patient Record System (CPRS) and descriptive statistics will be used to calculate differences in baseline characteristics and HbA1c as appropriate.

**RESULTS:** Data collection and analysis in progress; over 400 patients were converted from liraglutide to semaglutide between March and November 2021.

**CONCLUSION:** Data collection and analysis in progress, final data to be presented May 2022.

#### PL VIII-12

##### EVALUATION OF PHARMACIST-RUN SMOKING CESSATION CLINIC ON TOBACCO CESSATION RATES IN A VETERAN POPULATION.

Khushbu A. Patel, Arezo Noormohammadi, Erene Attia, Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX.

**PURPOSE:** The primary objective of this study is to determine if there is a significant increase in cessation

rates with a pharmacist-managed smoking cessation clinic that offers both pharmacologic and behavioral modifications over a six-month time frame.

**METHODS:** This study was approved by the Michael E. DeBakey VA Medical Center Institutional Review Board, and the Baylor College of Medicine Institutional Review Board. This was a single-center, prospective study that recruited veterans via International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) diagnosis codes for nicotine/tobacco dependence to participate in a clinical pharmacy specialist (CPS)-run smoking cessation clinic. In order to aid cessation efforts, participants were offered pharmacotherapy, behavioral modifications, and frequent follow ups. Once a participant demonstrated that they were tobacco free for six months, the veteran was eligible for discharge from the clinic and continued care was deferred back to primary care provider.

**RESULTS:** : A total of 54 participants were screened in this study, of which 29 met the inclusion criteria. 11 participants withdrew from the study, as they were no longer willing to quit smoking. 38% of participants enrolled in the study achieved complete tobacco cessation by the end of the study, with 31% achieving the primary endpoint of tobacco cessation for 6 months. 17% of participants maintained  $\geq 50\%$  reduction in tobacco use. One participant increased the amount of tobacco used since initial visit.

**CONCLUSION:** Providing pharmacotherapy, behavioral counseling, and frequent follow-up visits may result in higher numbers of tobacco cessation. Expanding pharmacist-run smoking cessation clinics may result in an increase in cessation rates in the veteran population.

## VIII-C: Abulatory Care

#### PL VIII-13

##### RENAL OUTCOMES WITH COMBINATION SGLT-2 INHIBITORS AND GLP-1 AGONISTS VS. MONOTHERAPY IN VETERANS WITH TYPE 2 DIABETES AND HEART FAILURE.

Carly Oberdieck<sup>1,2</sup>, Meredith Sigler<sup>1,2</sup>, Alaina Van Dyke<sup>1,2</sup>, Haley Runeberg<sup>1</sup>, Kalin Clifford<sup>1,2</sup>, North Texas VA Health Care System<sup>1</sup>/Texas Tech University Health Sciences Center Jerry H. Hodge School of Pharmacy, Dallas, TX.<sup>2</sup>

**BACKGROUND:** In patients with type 2 diabetes (T2DM), therapy with agents proven to confer cardiovascular (CV) and renal protection is useful due to the long-term cardiorenal risks associated with untreated hyperglycemia. As monotherapy, select sodium-glucose cotransporter-2 inhibitors (SGLT2-i) have proven beneficial for patients with diabetic kidney disease in trials conducted to determine renal outcomes. Though not focused on renal outcomes, secondary endpoints from cardiovascular outcome trials for glucagon-like peptide 1 receptor agonists (GLP-1 RAs) have shown reduction in albuminuria as a beneficial renal effect. Besides renal effects, empagliflozin, an SGLT2-i, is now approved for heart failure with reduced or preserved ejection fraction (HFrEF or HFpEF) due to proven reduction in a composite of CV death and HF hospitalization. While some GLP-1 RAs have proven CV benefit, these agents are considered to have a neutral impact on HF. Benefit of combination GLP-1RA and SGLT2-i therapy in patients with both T2DM and existing HF warrants additional study.

**PURPOSE:** To evaluate renal outcomes of veterans with T2DM and HF prescribed combination SGLT2-i with GLP-1 RA vs. monotherapy with either agent.

**METHODS:** Retrospective data will be analyzed from the electronic medical records of veteran patients 18 years or older with T2DM and any type of HF receiving SGLT2-i or GLP-1 RA or both for at least 6 months between March 1, 2019 and September 30, 2021 at the North Texas VA Health Care System. The primary outcome is to determine change in eGFR between patients with T2DM and HF receiving combination therapy vs. monotherapy with either agent. Secondary outcomes include change in serum creatinine, incidence of macroalbuminuria, incidence of heart failure hospitalizations, and adverse events leading to discontinuation of GLP-1 RA or SGLT2-i

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

**PL VIII-14  
TOLERABILITY OF  
SACUBITRIL/VALSARTAN IN HEART  
FAILURE WITH REDUCED EJECTION  
PATIENTS RECEIVING HYDRALAZINE AND  
ISOSORBIDE DINITRATE.**

Molly E Steeves, Meredith Sigler, Krystal L Edwards, Rick A Weideman, Carlos Alvarez, VA North Texas Health Care System, Dallas, TX.

**PURPOSE:** To determine if there is a difference in tolerability between sacubitril/valsartan versus commonly used angiotensin converting enzyme inhibitors (ACEi) and angiotensin II receptor blockers (ARB) in patients with heart failure with reduced ejection fraction (HFrEF) who are receiving concurrent therapy with hydralazine/isosorbide dinitrate.

**BACKGROUND:** Per the 2013 American College of Cardiology Foundation/American Heart Association Task Force Guidelines for the Management of Heart Failure, a combination of hydralazine/isosorbide dinitrate (HYD/ISDN) is recommended for all African Americans with New York Heart Association (NYHA) class III-IV heart failure with reduced ejection fraction (HFrEF). It is part of recommended guideline directed medical therapy (GDMT) as it confers a reduction in both morbidity and mortality. More recently in 2021, the American College of Cardiology (ACC) released an expert consensus pathway recommending sacubitril/valsartan as first line therapy over ACE inhibitors or ARBs for all HFrEF patients. However, ACC specifically noted the need for more data regarding the risks and expected outcomes when combining new drugs, such as sacubitril/valsartan, specifically with HYD/ISDN. Additionally, they cautioned of the potential for increased hypotension when combining with HYD/ISDN. This could lead to the need to discontinue GDMT agents, which may ultimately increase morbidity and mortality for these patients.

**METHODS:** This was a single center, retrospective, cohort study conducted at the North Texas Veterans Affairs Health Care System. Data were collected from electronic medical records of adult patients with a documented left ventricular ejection fraction (LVEF) less than 40% who filled prescriptions for HYD and ISD concurrently with either sacubitril/valsartan, lisinopril, or losartan from 10/01/2015 through 07/01/2021. The primary outcome of interest was the rate of discontinuation of any GDMT within 6 months of first receiving the combination of HYD/ISD with sacubitril/valsartan versus lisinopril or losartan.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress

**PL VIII-15**

**EFFECT OF PREGABALIN INITIATION ON DIURETIC REQUIREMENTS IN PATIENTS WITH HEART FAILURE.**

Avital Gurman, Meredith Sigler, Dawn Lopez, Carlos Alvarez, North Texas VA Healthcare System/Texas Tech University Health Sciences Center – Jerry H. Hodge School of Pharmacy, Dallas, TX.

**PURPOSE:** The FDA cautions that pregabalin may cause peripheral edema and suggests pregabalin should be used with caution in patients with NYHA Class III or IV heart failure. Additionally, the American Heart Association (AHA) lists pregabalin as a medication that can exacerbate heart failure, but the mechanism and frequency of this occurrence is unclear. Current literature on this subject consists of patient case reports and small case series, and this literature lacks data to indicate if, and by how much, a patient's diuretic requirements may change after being initiated on pregabalin therapy. The purpose of this study was to evaluate the effect of pregabalin initiation on diuretic requirements in VA patients with heart failure, to provide more robust data regarding the risk of fluid retention due to pregabalin for healthcare providers to consider when initiating pregabalin therapy in patients with heart failure.

**METHODS:** This was a single-center, retrospective analysis of patients with heart failure who received care at the North Texas VA Healthcare Center and were prescribed pregabalin between 01/01/2014 and 09/01/2021. Heart failure patients were eligible regardless of ejection fraction. The study received local and institutional IRB and R&D committee approvals prior to the start of data collection. Data was collected retrospectively from the VA electronic records. Patients' diuretic requirements prior to starting pregabalin and six months after were compared. The primary outcome was a change in the dose of the patient's loop diuretic (in furosemide dose equivalents) within 6 months after pregabalin initiation. Secondary outcomes included initiation of a new diuretic medication class within 6 months after pregabalin initiation, a change in the thiazide diuretic required within 6 months after pregabalin initiation, and number of hospitalizations due to acute decompensated heart failure within one year after pregabalin initiation.

**RESULTS:** A total of 208 patients were identified that had a diagnosis of heart failure and were started on pregabalin between 01/01/2014 and 09/01/2021. Of

these patients, 58 met inclusion and exclusion criteria. Data analysis in progress. **CONCLUSIONS:** in progress.

**PL VIII-16**

**EVALUATION OF ADHERENCE AFTER TRANSITIONING FROM LIRAGLUTIDE TO SEMAGLUTIDE.**

Amika Z. Alibhai, Lisa M. Chastain, and Lisa U. Nguyen. VA North Texas Health Care System and Texas Tech University Health Sciences Center, Dallas, TX.

**PURPOSE:** Semaglutide, a glucagon-like peptide-1 receptor agonist (GLP-1RA) medication, is one of the few currently available once-weekly medications for diabetes management. As diabetes management continues to evolve, many medications are being investigated for once-weekly administration. With the incorporation of these medications into health-system formularies, a question arises: How do weekly diabetes medications impact medication adherence in comparison to daily medications of the same drug class?

The purpose of this study is to evaluate patient medication adherence after transitioning from daily liraglutide to weekly semaglutide.

**METHODS:** This study is a single center, retrospective, cohort, observational chart review. Records of patients within the VA North Texas Health Care System were accessed through the Computerized Patient Record System (CPRS). The primary outcome is a comparison of adherence in patients who were taking daily liraglutide and in those same patients after transitioning to weekly semaglutide. The data collected includes patient demographics and prescription data for both liraglutide and semaglutide, including specific dates of fills and days supplied. Patient adherence will be calculated with proportion of days covered for each medication. Given the study design, data will be analyzed with a paired t-test to evaluate adherence outcomes.

**RESULTS:** Retrospective data collection is currently in progress. Analysis is expected to be completed April 2022. Conclusions are pending on completion of data analysis.

**PL VIII-17**  
**EVALUATING WEIGHT LOSS WITH SEMAGLUTIDE IN ELDERLY PATIENTS WITH TYPE II DIABETES.**

Grace Huynh, Haley Runeberg, Rick Weideman. VA North Texas Health Care System. Dallas, Texas.

**PURPOSE:** Semaglutide is indicated for treatment of type II diabetes (T2DM) and weight loss. Unintended weight loss in the elderly (> 65 years old) is associated with increased mortality. It is unclear if the elderly are more sensitive to the weight loss properties of semaglutide. If so, closer monitoring of unintended weight loss upon semaglutide initiation may be warranted to prevent adverse drug events in this population. The purpose of this retrospective cohort study is to determine if there is a significant difference in percent weight loss between elderly and non-elderly (18 to 64 years old) veterans who are diagnosed with T2DM and initiating semaglutide.

**METHODS:** This is a single center, retrospective cohort study conducted at the Veteran Affairs North Texas Health Care System (VANTHCS). Data was collected through the Computerized Patient Record System (CPRS) on veterans 18 years or older who started semaglutide for the indication of T2DM between October 2020 and October 25, 2021. The primary endpoint is the difference in percent weight loss between the elderly and non-elderly veterans 3 months after semaglutide initiation. The secondary endpoints are the difference in percent weight loss 6 months after semaglutide initiation, difference of kg weight loss after 3 and 6 months of semaglutide initiation, and the occurrence of adverse events related to semaglutide that lead to the discontinuation of semaglutide or death. The primary and secondary outcomes related to weight loss differences will be analyzed via t-test. Logistic regression will be conducted when appropriate to adjust for potential confounding variables. Subgroup analysis will be conducted for different therapeutic semaglutide doses (0.5 mg and 1 mg SQ weekly) and presence of heart failure. Adverse events will be descriptive.

**RESULTS:** Pending.

**CONCLUSION:** Pending.

**PL VIII-18**  
**ASSESSING A PHARMACIST-PHYSICIAN-LED TRAIN-THE-TRAINER VACCINE**

**HESITANCY PROGRAM FOR FAITH-BASED COMMUNITY LEADERS**

Faustina Hahn, PharmD, Nedra Wardsworth, MPH, Melody Robinson, MPH, William R Kirchain, PharmD, CDCES

**PURPOSE:** In May 2021, Gallup reported that 32% of adults worldwide would not be willing to receive a free COVID-19 vaccine. The concept of vaccine hesitancy has been around for centuries, linked to various reasons like skepticism of the trustworthiness of science or sociopolitical views. Community leaders have the potential to set the tone and design the message based on what is best in their community. The purpose of this study is to assess the implementation strategy of leading a train-the-trainer program for community leaders, piloting with faith-based leaders.

**METHODS:** The primary outcome of this study is to identify strategies for creating a train-the-trainer program involving faith-based leaders for vaccine hesitancy. Through purposive sampling, faith-based leaders will be recruited to join a pharmacist and physician-led seminar. The faith-based leaders will recruit a team of their community members ("faith-based influencers") to participate. Participants will be engaged in the seminar and will be asked to participate in a prospective pre-and post-survey of the seminar. Survey questions will be adopted from Opel et al. Participants will also be invited to speak in interviews or focus groups to discuss their own interactions with their community members four to six weeks after the seminar. Focus group and interview questions will be adapted from the validated survey and include evaluation questions. Participants will be excluded if they are not faith-based leaders or faith-based influencers within the Greater New Orleans area. Participants must also be 18 years old or older. The data obtained will be analyzed using both qualitative and quantitative methods. For quantitative methods, descriptive statistics, Wilcoxon Signed Rank Test, ANOVA, and Chi-Square will be performed. For qualitative methods, inductive coding and identifying emerging themes, audits, member checking, and peer debriefing will be performed. This study has been approved by the Institutional Review Board at Xavier University of Louisiana.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

**PL VIII-19**

**EXPLORING THE IMPACT OF THE CORONAVIRUS DISEASE 2019 PANDEMIC ON THE VIRAL LOAD MANAGEMENT OF UNDERSERVED PEOPLE LIVING WITH HUMAN IMMUNODEFICIENCY VIRUS.**

Mia Reid, Tammy Hart, Janel Bailey-Wheeler, Candice Smith

**PURPOSE:** Therapeutic management of human immunodeficiency virus requires antiretroviral therapy (ART) adherence to lower the viral load to a point of viral suppression. Maintaining viral suppression improves the patient's quality of life and prevents disease transmission. Commonly, barriers to ART adherence include finances and stigma. However, during the past year, the current coronavirus disease 2019 (COVID-19) pandemic created additional obstacles, such as fear of contracting the virus, which may have resulted in limited access to care for people living with HIV (PLWH). The purpose of this study is to assess the effects of COVID-19 on PLWH by examining changes in viral suppression status.

**STUDY DESIGN:** This study will employ a quantitative, retrospective analysis evaluating changes in HIV viral suppression status of underserved PLWH during the COVID-19 pandemic.

**METHODS:** This study employed a quantitative, retrospective analysis evaluating changes in HIV viral suppression status of underserved PLWH during the COVID-19 pandemic. Data for the study analysis emanated from patient viral suppression status, as of January 2019, retrieved from the Quality Improvement Officer from CareSouth Medical and Dental, a federally qualified healthcare center in Baton Rouge, Louisiana. To determine the sample size, the initial patient population was stratified based on inclusion and exclusion criteria. For inclusion in the study, patients must be greater than or equal to 18 years of age, diagnosed with HIV before January 2019, are currently on ART, are virally suppressed during the baseline period, and have a documented physician encounter (in clinic/via telehealth) during the experimental period. Patients who did not have a documented physician encounter (in clinic/via telehealth) during the experimental period were excluded from the study. For the primary outcome, viral load management, changes in patient viral load were assessed. For secondary outcomes, a correlation analysis will be performed to analyze potential

contributing factors that may prevent patients from maintaining viral suppression. Secondary outcomes include medication adherence, hospital admission, receipt of the COVID-19 vaccine, contraction of the COVID-19 virus, and history of mental illness (anxiety, depression, or both). Assessment of both the primary and secondary outcomes will occur by nonparametric statistical analysis.

**RESULTS:** Data collection and statistical analysis are currently in progress

**CONCLUSION:** Conclusion will be presented following the completion of data collection and statistical analysis

**IX-A: Critical Care**

**PL IX-1**

**EVALUATION OF TOCILIZUMAB USE IN PATIENTS WITH SEVERE COVID-19 IN A COMMUNITY HOSPITAL.**

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**PURPOSE:** Coronavirus disease 2019 (COVID-19) is associated with immune dysregulation and hyperinflammation, including elevated interleukin-6 (IL-6) levels. As of April 29, 2021, more than 349 million confirmed cases of COVID-19 have been reported to the World Health Organization, including more than 5.5 million deaths. Currently, the IDSA and NIH guidelines recommend IL-6 inhibitors, primarily tocilizumab, in addition to steroid for progressive severe and critical COVID-19 patients despite mixed evidence. The FDA's EUA of tocilizumab recommends its use in most patients requiring any O2 supplementation without other criteria's. Earlier studies found minimal effects with tocilizumab use while more recent studies reported mortality benefits, especially when used within 7 days of symptoms onset, recent hospitalization, requiring non-invasive ventilation (NIV), and with elevated inflammatory markers. Therefore, the objective of this study is to assess the efficacy of tocilizumab in patients with severe COVID-19 pneumonia in a small community center hospital.

**METHODS:** This was a retrospective medical record review of adult patients admitted to Valley Baptist Medical Center Brownsville, with a COVID-19 diagnosis from January 1, 2021 to January 31, 2022.

Adult patients within 96 hours of hospitalization and requiring NIV were included in the study. Exclusion criteria were those with major concomitant infections prior to diagnosis, immunocompromised, pregnant, LFTs > 5 times the upper limit of normal, ANC < 1000/mcL, or platelets < 50,000/mcL. Patients were matched based on age (< 65 and ≥ 65) and worst respiratory status within the first 72h of hospital admission. The primary outcome was the incidence of in-hospital mortality. The secondary outcomes included hospital length of stay and the rate of patients requiring escalation from NIV to invasive mechanical ventilation.

**RESULTS/CONCLUSION:** In progress

## PL IX-2

### COMPARISON OF NPH INSULIN AND INSULIN GLARGINE IN ICU PATIENTS: A RETROSPECTIVE COHORT STUDY.

Haleigh Smith, Olga Shvarts, Matthew Melia, Janaye Leonard, Anita Rahman, Medical City Plano, Plano, TX.

**PURPOSE:** To determine if the use of NPH insulin compared to insulin glargine in critically ill patients will result in similar blood glucose (BG) control. Additionally, the safety and efficacy of NPH insulin compared to insulin glargine will be assessed by comparing the number of hypoglycemic events, average basal insulin doses, and ICU and hospital length of stay (LOS).

**METHODS:** A retrospective chart review of patients who were admitted to the ICU at Medical City Plano between December 1, 2020 and December 1, 2021 was performed. Data was collected for the previously described time period or until 50 patients were identified in each treatment group, whichever came first. Patients who received either insulin glargine or NPH insulin were identified through the Vigilanz® pharmacy surveillance system and classified into corresponding cohorts. Patients who transitioned between insulin groups were included in the regimen they last received and data collection began at the initiation of the final regimen. Patients were followed until they were discharged from the ICU or until they were transitioned to a lower level of care, whichever came first. The primary endpoint was BG control, measured as the percentage of readings between 80-180 mg/dL. Secondary endpoints included number of hypoglycemic events (defined as a BG <70 mg/dL), average basal insulin doses, and ICU and hospital

LOS. Patients were excluded from data collection if they were less than 18 years old, were being treated for diabetic ketoacidosis or hyperosmolar hyperglycemic state, received any non-insulin antidiabetic agents, or if they were physically on an ICU unit due to limited to bed numbers but were not under ICU care.

**RESULTS:** A total of 71 patients were included in the study with 21 (30%) in the NPH group and 50 (70%) in the glargine group. The percentage of BG readings in range was 49.2% (95% CI, 46.7%-51.8%) compared to 48.9% (95% CI, 47.6%-50.3%) for the NPH group and glargine group, respectively (p=0.831). The mean BG reading in the NPH group was 181 + 61 mg/dL compared to 178 + 58 mg/dL in the glargine group. In the NPH group, 7 patients experienced hypoglycemic events with a total occurrence of 34 compared to 21 patients in the glargine group with a total occurrence of 108 hypoglycemic events (p=0.522). The mean hospital LOS in the NPH group was 20 + 17 days and was 22 + 16 days in the glargine group (p=0.797). The mean ICU LOS in the NPH group was 16 + 15 days compared to 19 + 15 days in the glargine group (p=0.433).

**CONCLUSION:** Although likely underpowered, data from this retrospective study suggest that the use of NPH insulin compared to that of insulin glargine resulted in similar glycemic control in patients admitted to the ICU. A notable secondary outcome was the number of hypoglycemic events, of which more occurred in the glargine group compared to in the NPH group.

## PL IX-3

### OPTIMIZATION AND IMPLEMENTATION OF A HYPERGLYCEMIC EMERGENCY MANAGEMENT ALGORITHM: IMPACT ON TIME TO RESOLUTION

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**PURPOSE:** The primary aim of this quality improvement project is to decrease the time from hyperglycemic emergency (i.e., diabetic ketoacidosis, hyperglycemic hyperosmolar syndrome, euglycemic diabetic ketoacidosis) resolution to initiation of a long-acting insulin regimen therapy by 25% by May 2022 at The University of Texas MD Anderson Cancer Center.

**METHODS:** Pre-intervention data was collected retrospectively via electronic medical records of all patients who received either an independent insulin infusion or had an order for the hyperglycemic emergency management (HEM) order set from June 1st, 2018 to August 15th, 2021. The study team evaluated compliance to the current hyperglycemic emergency management algorithm, which contains two steps. Step 1 of the algorithm consists of initiation of intravenous (IV) fluids and IV insulin. Step 2 aims to close the anion gap, return serum bicarbonate to normal levels, and initiate long-acting insulin (LAI). In addition to evaluating compliance, precipitating factors leading to hyperglycemic emergencies, time to transition to subcutaneous insulin, hyperglycemic events, hypoglycemic events, and electrolyte imbalances were also assessed. Post-intervention data will be collected on patients after implementation of the update HEM algorithm.

**RESULTS:** From the pre-intervention data, 132 patients were identified and 126 patients included from the pre-intervention data. Insulin was properly titrated more in step 2 than step 1 (73% vs 69%). The correct LAI dose was compliant in 14% of patients. The difference between hyperglycemic emergency resolution and initiation of LAI exceeded 12 hours in 40% of patients. After resolution of the hyperglycemic emergency, 87% of patients experienced at least 1 hyperglycemic event. Collection and analysis of post-intervention data is ongoing.

**CONCLUSION:** Prolonging initiation of LAI and starting LAI at inadequate doses, which led to rebound hyperglycemia, were the main factors contributing to delayed transfer from the intensive care unit. Educational presentations and algorithmic changes have been made to decrease these delays and improve the compliance and safety to the HEM algorithm. Conclusions are subject to change following the collection and analysis of post-educational intervention data.

#### PL IX-4

#### EVALUATING THE CLINICAL IMPACT OF CORTICOSTEROID DURATION ON SARS-COV-2 ACUTE RESPIRATORY DISTRESS SYNDROME

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**PURPOSE:** Corticosteroids are standard of care for hospitalized COVID-19 patients requiring oxygen

supplementation, with decreased mortality demonstrated in large clinical trials. COVID-19 may cause acute respiratory distress syndrome (ARDS), in which the use of corticosteroids has uncertain benefit and possible harm beyond 14 days. Prolonged use of corticosteroids is not without risk, as these agents may have substantial side effects. Moreover, steroids were used for a limited time (up to 10 days) in studies supporting utilization to treat COVID-19. To date, limited studies evaluating the clinical impact of corticosteroid use beyond 10 days for treatment of COVID-19 have been reported.

**METHODS:** This single-center, retrospective, observational study sought to evaluate the mortality impact of the use of corticosteroids beyond 10 days for intensive care unit (ICU) patients with COVID-19. Secondary objectives included the incidence of secondary infection, duration of mechanical ventilation, and ICU/hospital length of stay. Patients eighteen years of age or older admitted to the ICU between 8/1/20 and 1/31/21 that received corticosteroids for COVID-19 were eligible for inclusion. Patients were excluded if they died or were discharged prior to day 11 of corticosteroid administration. Demographic and clinical data on all patients were extracted and recorded from the hospital electronic health record. Patients were divided into two groups: standard therapy ( $\leq 10$  days of corticosteroids) and extended therapy ( $> 10$  days of corticosteroids).

**RESULTS:** A total of 139 patients were included in the study: 96 patients in the extended therapy group and 43 patients in the standard therapy group. Baseline characteristics were evenly matched between the 2 groups, with the exception of higher incidence of vasopressor use (36% vs 16%) and mechanical ventilation (55% vs 26%) in the extended therapy group. Mortality at day 28 occurred in 57 patients (61%) in the extended therapy group versus 23 patients (51%) in the standard therapy group ( $p=0.29$ ). A higher incidence of secondary infection was observed in the extended therapy group compared to the standard therapy group (40% vs 18%;  $p=0.01$ ) with most being bacterial pneumonias. ICU length of stay was longer in the extended therapy group versus standard therapy (14 days vs 9 days;  $p=0.01$ ). Hospital length of stay and duration of mechanical ventilation did not differ in either group. These results are pending further exploration based on propensity matching.

**CONCLUSION:** Extending corticosteroid therapy duration beyond 10 days did not impact mortality at 28 days among a cohort of critically ill patients with COVID-19. In contrast, extending corticosteroid therapy was associated with higher rates of secondary infection. Patients receiving extended therapy had longer ICU stays and a trend toward longer duration of mechanical ventilation. Balancing the potential risks of prolonged corticosteroid exposure with the uncertain benefit of extending the duration of therapy beyond 10 day is essential to improve outcomes of COVID-19 patients.

#### PL IX-5

##### **THE EFFECT OF A MULTIMODAL PAIN REGIMEN ON OPIOID UTILIZATION IN TRAUMA INTENSIVE CARE UNIT PATIENT: A RETROSPECTIVE STUDY**

Cierra Frazier, Emily Johnston, Amanda Bridges, Madalyn Kirkwood, Charles Harris, Our Lady of the Lake Regional Medical Center, Baton Rouge, LA

**PURPOSE:** Although opioids were once recommended as first-line therapy for treating pain in critically ill patients, the prevalence of opioid misuse and addiction over the years has prompted healthcare professionals and institutions to establish protocols to reduce the amount of opioids given to patients. Multimodal analgesia, which consists of a combination of pharmacological agents and non-pharmacological techniques that target pain, strives to reduce the use of opioids in patients while still effectively treating pain. The use of multimodal analgesia has been studied in the critically ill population and has been recommended by several guidelines including the 2018 Society of Critical Care Medicine (SCCM) Practice Guidelines for the Prevention and Management of Pain, Agitation, and Delirium, Immobility, and Sleep Disruption (PADIS) in Adult Patients in the Intensive Care Unit (ICU). However, limited data exists evaluating the effects of multimodal analgesia in critically ill trauma patients. The purpose of this study is to evaluate opioid utilization in patients admitted to the trauma ICU service at Our Lady of the Lake Regional Medical Center (OLOLRMC) following the implementation of a multimodal analgesic protocol.

**METHODS:** The study is a retrospective, single-center, pre- and post- cohort study designed to assess opioid utilization in patients on the trauma ICU service at OLOLRMC following implementation of a multimodal analgesic protocol. Study subjects were

identified by querying OLOLRMC trauma ICU service registry from September 1st, 2017 to April 30th, 2019 and January 1st, 2020, to August 31st, 2021. Patients were included if at least 18 years of age and admitted to the trauma ICU service for at least 24 hours. Exclusion criteria consists of ventilated patients, patients receiving continuous infusion opioids, and patients with a documented history of substance abuse. Multimodal analgesia was defined as the use of at least two of the following: acetaminophen, gabapentin, lidocaine patches, or methocarbamol. The primary objective of this study is to assess the potential reduction in opioid utilization measured by morphine milliequivalents (MME) throughout a patient's admission to the trauma ICU service. Secondary objectives are to assess pain scores, ICU and hospital lengths of stay, and amount of opioids prescribed at discharge measured in MME.

**RESULTS:** Analysis is in process, final data to be presented

**CONCLUSION:** Analysis is in process, final data to be presented

#### PL IX-6

##### **EVALUATION OF A CRITICAL CARE INSULIN PROTOCOL USING A MULTIPLIER METHOD.**

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**PURPOSE:** To evaluate the efficacy and safety of the intensive care unit insulin infusion protocol with a multiplier at Brooke Army Medical Center.

**METHODS:** This was a retrospective, single center, observational study performed at a large academic medical center. The primary objective of this study was to determine the efficacy of the protocol by calculating the percentage of orders that met the blood glucose goal of 140-180 mg/dL within 12 hours of initiation. Secondary objectives were to assess the safety of the protocol by determining the percentage of orders resulting in hypoglycemia, the continued average glucose levels after adequate glucose was observed until infusion discontinuation, and the percentage of orders needing a higher multiplier value to achieve goal. Data extracted from the electronic medical record was used to identify patients on the protocol from 1 July 2020 until 30 June 2021. The primary objective was determined by using the blood

glucose levels from the time of insulin infusion initiation to the time of 2 consecutive blood glucose levels ranging from 140-180 mg/dL. All patients who achieved adequate blood glucose control within 12 hours were considered to have met the primary outcome. Hypoglycemia was defined as having a blood glucose level of <80 mg/dL any time during the infusion and up to 3 hours after discontinuation of the insulin infusion.

**RESULTS:** A total of 267 ICU insulin infusion protocol orders were evaluated. 197 (73.8%) of these orders achieved the primary outcome of 2 blood glucose levels in therapeutic range within 12 hours after initiation. 30 (11.2%) of insulin infusions caused a hypoglycemic reading. In further evaluation of the 197 orders that achieved the primary outcome, 194 orders continued after therapeutic level was obtained. 102 (52.6%) of these orders had an average glucose level within the 140-180 mg/dL range, 68 (35.1%) had an average level less than 140 mg/dL, while 24 (12.4%) had an average glucose level greater than 180 mg/dL. 16 (8.2%) of orders used a higher multiplier to achieve therapeutic goal within 12 hours. No statistical analysis was conducted for this study.

**CONCLUSION:** The evaluated ICU insulin infusion protocol appears to perform as well as, if not better in comparison to other ICU insulin protocols in achieving goal therapeutic ranges in the specified period of time per protocol. Our infusion protocol also appears to have lower hypoglycemia rates than other protocols from literature. Further studies are required for statistical analysis to determine the safest and most effective management of blood glucose control in the critical care environment.

#### PL IX-7

##### THE IMPACT OF A BENZODIAZEPINE-SPARING STRATEGY ON ALCOHOL WITHDRAWAL MANAGEMENT.

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**PURPOSE:** Benzodiazepines have been proven efficacious in the management of alcohol withdrawal but come with a significant side effect burden. Commonly utilized agents in benzodiazepine-sparing strategies include clonidine, gabapentin, and dexmedetomidine. Individually, these agents are less potent than benzodiazepines, but literature reveals

using higher doses and combinations of these agents to target multiple pathways may provide similar efficacy with less adverse events compared to benzodiazepines. The objective of the study is to assess the impact of a benzodiazepine-sparing strategy on overall benzodiazepine use in alcohol withdrawal management.

**METHODS:** This is an IRB approved retrospective, chart review of trauma and surgical patients at a large, community hospital. An electronic health record (EHR) database search was conducted to identify historic patients from 2019 who received treatment for alcohol withdrawal before the implementation of a benzodiazepine-sparing protocol. A separate EHR database search was conducted to identify patients who received treatment for alcohol withdrawal utilizing a benzodiazepine-sparing protocol. Patients were included if they had a Prediction of Alcohol Withdrawal Severity Scale (PAWSS) score  $\geq 4$  or clinical suspicion of alcohol withdrawal. Patients were excluded if they had a creatinine clearance (CrCl) < 30 ml/min or if they were incarcerated, < 18 years of age, or pregnant at the time of admission. An estimated 90 patients were needed to reach 80% power using an alpha of 0.05. The primary outcome is decreased overall benzodiazepine use in lorazepam equivalents in milligrams. Secondary outcomes will evaluate duration of alcohol withdrawal symptoms and adverse effects leading to protocol discontinuation. Descriptive statistics were utilized to analyze primary and secondary outcomes as well as baseline characteristics between groups. Propensity matching was performed using IBM SPSS Statistics version 25.0 (IBM Inc., Armonk, NY).

**RESULTS:** A total of 159 patients were in the control group and a total of 25 patients received a benzodiazepine-sparing strategy. Patients who received a benzodiazepine-sparing strategy required a lower overall milligram amount of benzodiazepines in lorazepam equivalents (median [IQR], 2.0 mg [0.0, 14.3] vs 10.0 mg [1.5, 27.5]). Propensity matching 25 patients in the treatment group to 25 patients in the control group yielded similar results of lower overall benzodiazepine use compared to the control group (median [IQR], 7.5 mg [2.1, 25.0] vs 13.0 mg [9.0, 36.5]). The treatment group experienced fewer days of alcohol withdrawal symptoms (median [IQR], 1.0 [0.0, 6.0] vs 5.0 [0.0, 4.0]). Clonidine was discontinued or held in 20% of patients due to low systolic blood pressure.

**CONCLUSION:** Utilization of a benzodiazepine-sparing strategy was associated with a reduction in overall benzodiazepine exposure and faster resolution of alcohol withdrawal symptoms compared to the control group. The benzodiazepine-sparing strategy was well tolerated with few patients discontinuing or holding protocol medications due to adverse events. The results of this study implicate a need for further robust trials to establish the safety and efficacy of benzodiazepine-sparing protocols.

## IX-B: Critical Care

### PL IX-8

#### EFFECTIVENESS OF BROMOCRIPTINE FOR THE MANAGEMENT OF CENTRAL HYPERTHERMIA IN THE NEUROTRAUMA ICU (NTICU)

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**PURPOSE:** To evaluate the antipyretic effect of bromocriptine in neurotrauma-ICU (NTICU) patients.

**METHODS:** This is a retrospective observational analysis of bromocriptine use in the NTICU for treatment of central hyperthermia. Patients who were admitted from January 2018 to December 2021 were screened for bromocriptine orders via chart review of electronic MAR. Inclusion criteria were age  $\geq 18$  years, admission to Texas Health Presbyterian Hospital Dallas NTICU  $> 48$  hours with an acute neurologic injury, and administration of at least one dose of bromocriptine for treatment of central hyperthermia. Exclusion criteria were any indication for bromocriptine use other than central hyperthermia. The primary outcome of the study was to determine if bromocriptine use was associated with a reduction in temperature. Data regarding ICU and hospital length of stay, mortality, bromocriptine duration of use, and concomitant use of acetaminophen, baclofen, and ibuprofen were also collected. All analyses were performed in R program.

**RESULTS:** After screening 65 patients with a bromocriptine order, 31 patients were included. After administration of bromocriptine, there was an associated reduction in temperature. Furthermore, it was estimated that as age at admission increased by one year, the expected temperature decreased by 0.01 °F ( $p < 0.001$ ). Lastly, invasive temperatures were

expected to be 1.08 °F greater than non-invasive approaches ( $p < 0.001$ ).

**CONCLUSIONS:** Bromocriptine use was associated with a reduction in temperature in patients with central hyperthermia. The statistical analysis is limited by small sample size.

### PL IX-9

#### EFFICACY OF PERIPHERALLY ADMINISTERED VASOPRESSORS IN REDUCING THE NEED FOR CENTRAL LINE PLACEMENT

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**PURPOSE:** To evaluate the safety of peripherally administered norepinephrine as well as the impact on avoiding central line placement, including associated costs and complications.

**METHODS:** This is a retrospective analysis of adult patients at Texas Health Presbyterian Hospital Dallas who received norepinephrine, either via peripheral or central IV catheter, to maintain mean arterial pressure (MAP)  $\geq 65$  mmHg between January 1 and September 1, 2021. Our institution has a protocol which allows peripheral infusion of vasopressor agents via dedicated, large gauge, mid-to-upper arm IV catheters for up to 24 hours. Patients were excluded if they had been transferred from an outside facility, received push-dose vasopressors, had only hand or wrist peripheral IV access, or required multiple vasopressors. The primary outcome was the need for central venous access in patients initially started on peripherally infused norepinephrine. Safety outcomes included local tissue injury attributed to norepinephrine administration, either peripherally or centrally, such as extravasation, tissue necrosis, and thrombophlebitis.

**RESULTS:** A preliminary analysis of 88 patients was conducted (65 initially on peripherally infused norepinephrine vs. 23 with central line administration). The majority of patients required vasopressors for distributive or mixed shock. Of the 65 patients that started norepinephrine via peripheral IV access, 24 (37%) avoided the need for central line placement. In the group of patients who received norepinephrine via peripheral access, including those who progressed to central line placement, the median duration of peripheral norepinephrine was 6 hours [IQR 3 – 12.5] at a median maximum dose of 0.15

mcg/kg/min [IQR 0.08 – 0.275]. Twenty-three patients received norepinephrine via a central line only with a median duration of 17 hours [IQR 8 – 50] at a median maximum dose of 0.08 mcg/kg/minute [IQR 0.05 – 0.2]. No extravasation or local complications were observed in the study population, regardless of site of infusion.

**CONCLUSION:** Peripherally administered norepinephrine was not associated with any adverse infusion reactions. Initial peripheral infusion of norepinephrine avoided the need for central line placement in over one-third of patients, which may accelerate time to achieve resuscitation goals, reduce costs, and avoid complications of central venous catheters.

**PL IX-10  
REVIEWING ANTICOAGULATION THERAPY  
IN PATIENTS WITH COVID-19 AND RATES  
OF THROMBOSES**

Orlean Patterson, Stephanie Hatten, Ondrea Kelly, Mollie VanNatta, Olivia Antosz, Elizabeth Stephenson, Kelsey Trimble, Ochsner LSU Health Shreveport- Academic Medical Center, Shreveport, LA

**PURPOSE:** A disproportionate number of thrombotic events has been observed in patients infected with the novel 2019 coronavirus (COVID-19). While there have been several studies evaluating anticoagulation strategies in COVID-19 positive patients, there is limited data reviewing the rate of thrombosis in this patient population. The purpose of this study is to review the incidence of thrombotic events in hospitalized COVID-19 positive patients who received therapy with either heparin or enoxaparin during admission.

**METHODS:** This study is a single-center, retrospective chart review using the institution's electronic medical records of patients admitted to Ochsner LSU Health Shreveport (OLHS) from January 1, 2020 to August 30, 2021 who tested positive for COVID-19. Patients included are between the ages of 18 and 89 years old, had a positive COVID-19 test within 21 days from the start of anticoagulation, and received anticoagulation with heparin or enoxaparin within 14 days of admission. Patients excluded were those with platelets less than 50,000/ $\mu$ L, active bleeding, prisoners, pregnant females, and those who receive treatment with enoxaparin, warfarin, apixaban, dabigatran,

rivaroxaban, or edoxaban in the outpatient setting. The primary objective of the study is to determine the incidence of thrombotic events in COVID-19 positive patients who received anticoagulation with either heparin or enoxaparin based on prophylactic, treatment, or a non-conventional dosing regimen at the end of a 21-day period. Secondary objectives include comparing the rates of thrombosis between heparin at prophylaxis, treatment, and non-conventional dosing regimens and enoxaparin at prophylaxis, treatment, and non-conventional dosing regimens, comparing bleeding adverse events between heparin and enoxaparin, and mortality during hospital stay.

**RESULTS/CONCLUSION:** Analysis is in process, and final data will be presented.

**PL IX-11  
EARLY VERSUS DELAYED INITIATION OF  
BASAL INSULIN IN THE ACUTE  
MANAGEMENT OF DIABETIC  
KETOACIDOSIS (DKA) – A RETROSPECTIVE  
STUDY**

Taryn Dorius, Kristen Herr, Elizabeth Stephenson, Stephanie Hatten,

Shawn Manor, Jacob Burnett, Ochsner LSU Health Shreveport, Shreveport, Louisiana

**PURPOSE:** Recent studies delve into possible benefits of early initiation of basal insulin in the acute management of DKA, with early initiation defined as prior to anion gap (AG) closure and within anywhere from two to twelve hours of insulin infusion initiation. The potential benefits analyzed include less time on insulin infusion, shorter time to DKA resolution, less time in the intensive care unit (ICU), shorter overall length of stay, decreased rates of hypoglycemia, and decreased rates of rebound hyperglycemia. The purpose of this study is to evaluate the duration of insulin infusion required for DKA patients receiving early versus delayed initiation of basal insulin.

**METHODS:** In this retrospective cohort study, patients were divided into early versus delayed initiation of basal insulin. Early initiation is defined as initiation of basal insulin  $\leq 8$  hours from initiation of insulin infusion and prior to AG closure ( $AG \leq 12$ ). Delayed initiation is defined as initiation of basal insulin  $> 8$  hours up to 7 days from initiation of insulin infusion and after AG closure.

**RESULTS:** Ninety patient charts were reviewed, and 45 patients were included. Of the 45 patients, 8 received early initiation of basal insulin, and 37 received delayed initiation. The primary outcome of time on insulin infusion was significantly lower in the early initiation group ( $p=0.02$ ). None of the secondary outcomes were found to be significantly different between groups – including time to AG closure, ICU length of stay, hospital length of stay, rebound hyperglycemia, restart of insulin infusion, and rates of hypoglycemia.

**CONCLUSION:** This study supports a shorter time on insulin infusion in patients receiving early initiation of basal insulin compared to delayed initiation. While differences in other explored outcomes are likely related to time on insulin infusion, there were no significant differences found. There were no observed differences in rates of hypoglycemia. While this study adds to current data to support effective and safe use of early initiation of basal insulin in the acute management of DKA, a well-designed prospective study is needed to truly determine the benefits.

**PL IX-12  
EVALUATING RISK FACTORS FOR  
GABAPENTIN ASSOCIATED RESPIRATORY  
DEPRESSION IN TRAUMA  
PATIENTS RECEIVING A MULTI-MODAL  
PAIN STRATEGY.**

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Orleans, LA

**PURPOSE:** To minimize opioid utilization in trauma patients, a multimodal approach to pain therapy is utilized, which includes non-opioid adjunctive therapies such as gabapentin. Our study evaluated the number of predisposing risk factors for respiratory depression in trauma patients receiving gabapentin as part of a multimodal pain regimen. Secondary outcomes evaluated the appropriateness of an initial gabapentin dosing regimen and episodes of respiratory depression.

**METHODS:** This is an IRB-approved retrospective study conducted at University Medical Center New Orleans (UMNCO), a Level I trauma academic medical center from January 1, 2021 – June 30, 2021. Adult patients admitted following trauma who received gabapentin for at least 24 hours as a part of a multimodal pain regimen were included. Patients were excluded if they were less than 18 years of age at the

time of admission, receiving gabapentin prior to admission, gabapentin was utilized for an indication other than a multimodal pain strategy, or those who required intubation prior to gabapentin initiation. Data collected from the electronic medical record included but was not limited to patient and trauma-specific demographics, gabapentin dosing regimen, renal function, and episodes of respiratory depression.

**RESULTS:** During the months of January 1, 2021- June 30, 2021, patients were admitted for traumatic injuries at UMCNO. A total of 152 patients met the inclusion criteria for our study, 389 patients were excluded based on study exclusion criteria. All 152 patients admitted to the trauma ICU had at least one predisposing risk factor of gabapentin associated respiratory depression. Twenty-eight patients had a prior history of an underlying respiratory condition, and three documented episodes of respiratory depression occurred. Gabapentin was dosed appropriately based on renal function in 148 (97.3%) patients and dosed appropriately based on age in 140 (92.1 %) patients.

**CONCLUSION:** Due to the use of a multi-modal pain regimen in the trauma ICU, patients are likely to have at least one predisposing risk factor for gabapentin associated respiratory depression, but it was not associated with an increased risk of respiratory depression. Gabapentin was appropriately dosed based on age and renal function in approximately 95% of all included patients.

**PL IX-13  
MEDICAL INTENSIVE CARE UNIT  
PHARMACISTS AND MEDICATION LIST  
MANAGEMENT**

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**PURPOSE:** Patients in the intensive care unit (ICU), frequently have an increased number of medications ordered and utilize high-risk drugs. Together, this amplifies the risk of pharmacologic errors. Critical care pharmacists have been associated with improving medication safety, when participating in interdisciplinary rounds. Previous studies indicate that ICU pharmacists commonly intervene on antibiotics and gastrointestinal medications but have not analyzed what medications the pharmacist discontinues most frequently. This study aims to assess discontinuation of medications during interdisciplinary rounds by the

medical ICU pharmacists. The objective of this study was to identify what medication class was most frequently recommended to be discontinued by the medical intensive care pharmacists.

**METHODS:** The institutional review board approved this retrospective, single-center, observational study conducted at University Medical Center New Orleans from January 1, 2021, to June 30, 2021. The electronic medical record was used to identify patients who had a medication discontinued by a medical ICU pharmacist. The data collected was used to identify the most frequently discontinued medication class by the medical ICU pharmacy team. Secondly, the data was used to identify the most common medication class discontinued on the day of ICU step down, duration of inactivity prior to discontinuation for intravenous medications, the quantity of pharmacist interventions per patient, and the patient's length of stay in the ICU.

**RESULTS:** A total of 663 patients met the inclusion criteria. The most frequently discontinued medication class during the patients' ICU stay was antibiotics (20.66%). While sedation (12%) and stress ulcer prophylaxis (9%) were the second and third most frequently discontinued classes. On the day of ICU step down, the most common drug class recommended to discontinue was also antibiotics (22%), followed by GI prophylaxis (17%) and sedation (12%). Each patient on average had 4 [0-20] interventions recorded by a medical ICU pharmacist pertaining to medication discontinuation. With the mean length of stay in the ICU being 5 days [0.33-22.5]. Titrated continuous infusions were inactive for a mean duration of 8 hours [0-230] prior to discontinuation.

**CONCLUSION:** The most frequently discontinued medication class recommended to be discontinued by the medical ICU pharmacist team at University Medical Center New Orleans is antibiotics.

## IX-C: Solid Organ Trans

### PL IX-14

#### IMPACT OF RABBIT ANTITHYMOCYTE GLOBULIN DOSING STRATEGIES ON THE INCIDENCE OF BK VIRUS INFECTION POST RENAL TRANSPLANT.

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**PURPOSE:** BK virus (BKV) infection has become an increasingly significant issue in renal transplant patients and can ultimately result in allograft loss. Immunosuppressive therapy plays a large role in the development of BKV, but patients at high risk for graft rejection often require intensive induction therapy with rabbit antithymocyte globulin (rATG). The purpose of this study is to compare the impact of two rATG induction dosing regimens on the incidence of BKV infection after renal transplantation: a cumulative dose of 4.5 mg/kg vs. a cumulative dose of 6 mg/kg.

**METHODS:** A retrospective study was conducted at a large academic medical center. Data was collected from an electronic health record system from patients who underwent renal transplantation from October 2018 to August 2021. Patients were included if they were 18 years of age and older and received induction immunosuppressive therapy with rATG at the time of transplant. Patients who underwent simultaneous multi-organ transplants were excluded. The primary endpoint was the percentage of renal transplant patients who developed BKV infection within six months of receiving rATG for induction therapy. Secondary endpoints included the incidence of biopsy-proven rejection, patient survival, thrombocytopenia, leukopenia, infusion-related reactions, and other infections.

**RESULTS:** A total of 102 patients were included and received a cumulative dose of 4.5 mg/kg (n=50) or 6 mg/kg (n=52) of rATG for induction therapy. Baseline characteristics were similar between the groups. The six-month incidence of BKV infection between the 4 mg/kg dosing group and 6 mg/kg dosing group was 20.0% (n=10) and 21.2% (n=11), respectively (p=1). Other infections, including urinary tract and bloodstream infections, occurred in 44.0% of the 4.5 mg/kg group and 44.2% of the 6 mg/kg group (p=1). The six-month patient survival rate was 100% in both groups, and the rate of graft survival was 100% in the 4.5 mg/kg group and 96.2% in the 6 mg/kg group (p=0.4952). Of the 21 patients in the study who developed BKV infection, none experienced graft loss. Biopsy-proven acute T-cell-mediated rejection occurred within six months in 10.0% and 7.7% of the 4.5 mg/kg group and 6 mg/kg group, respectively (p=0.7387). Incidence of additional safety outcomes in the 4.5 mg/kg and 6 mg/kg groups, respectively, were the following: thrombocytopenia, 42.0% and 67.3% (p=0.017); leukopenia, 46.0% and 32.7% (p=0.224);

and infusion-related reactions, 4.0% and 1.9% (p=0.614).

**CONCLUSION:** There was no difference in the incidence of BKV infection in six months post renal transplantation between patients receiving a total dose of 4.5 mg/kg vs. 6 mg/kg of rATG for induction therapy. Although no statistically significant differences were found in terms of efficacy, the 6 mg/kg dosing was associated with a lower rate of acute cellular rejection. Considering the potential efficacy benefit and no clinically meaningful difference observed in safety outcomes, further studies that are powered to detect a difference and with extended follow-up periods are warranted to determine if a cumulative dose of 6 mg/kg of rabbit antithymocyte globulin may be a more optimal dosing regimen than a total dose of 4.5 mg/kg.

**PL IX-15  
EVALUATION OF VENOUS  
THROMBOEMBOLISM (VTE) INCIDENCE IN  
LUNG TRANSPLANT RECIPIENTS AND  
ASSOCIATION WITH INITIATION OF  
CHEMICAL PROPHYLAXIS.**

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**PURPOSE:** Previous studies have demonstrated a high occurrence of venous thromboembolism (VTE) events in lung transplant patients. There is no standard protocol for VTE prophylaxis post-lung transplant. Optimal timing of VTE prophylaxis is unclear as a risk of both VTE and bleeding exist immediately post-transplant. To-date, no study has analyzed the timing of initiation of VTE prophylaxis and its association with early VTE occurrence in the lung transplant patient population. This study will help define the best strategy for preventing VTE by evaluating the timing of prophylaxis initiation and the correlation with VTE events.

**METHODS:** This study is a descriptive, retrospective chart review of lung transplant patients during index admission from January 2012 to August 2021 at a single center, large, quaternary academic hospital. A list of lung transplant recipients was obtained from the EPIC database. Lung transplant patients were excluded if they were <18 years of age, received a dual organ transplant, or required post-operative mechanical circulatory support. The primary endpoint for this study is the incidence of VTE during index

admission of lung transplantation and the association with timing of chemical VTE prophylaxis. Secondary endpoints include location of VTE (pulmonary embolism, lower extremity deep vein thrombosis (DVT), or upper extremity DVT), chemoprophylaxis regimen chosen, use of mechanical prophylaxis, reason for delay of VTE prophylaxis, hospital length of stay, and association between VTE and circulatory support during transplant procedure.

**RESULTS:** Data was collected on 100 patients. Of those, VTE incidence during index admission of lung transplantation was 17%. Of the patients who experienced a VTE event, three had a lower extremity DVT, ten had an upper extremity DVT, three had a PE, and one had both a PE and upper extremity DVT. Patients who experienced a VTE were on average started on VTE prophylaxis later than those who did not have a VTE event (3.88 days versus 2.78 days).

**CONCLUSION:** Optimal timing for VTE prophylaxis initiation may be within 0-3 days post-lung transplantation. Further studies are needed to determine the relationship between earlier VTE prophylaxis and bleeding events after lung transplant.

**PL IX-16  
ASSESSING PROPORTION OF DAYS  
COVERED (PDC) OF MYCOPHENOLATE  
(MCP) PRESCRIPTIONS IN POST KIDNEY  
TRANSPLANT (KT) RECIPIENTS AS A  
PREDICTOR OF CLINICAL OUTCOMES.**

Katherine Sandlin, Amy Lee, Lyndsay Cole, Stephanie Villasis, Teena Sam, Nicole Wilson, Angelito Yango, Bernard Fischbach, Ann D. Kataria, Baylor Health Enterprises, Dallas, Texas.

**PURPOSE:** Nonadherence to medications following KT is a risk factor for adverse outcomes. PDC is an objective measure of adherence obtained through retail prescription records and is calculated by the number of days covered by a medication in a specified time period. An 80% cut-off has been reported in the literature as a threshold that stratifies adherent and non-adherent patients. The aim of this study was to assess the impact of adherence as described by PDC of MCP on post-KT outcomes.

**METHODS:** This was a retrospective chart review conducted via the pharmacy dispensing and health record systems. Recipients who received a KT between 03/2020-06/2021 and persistently filled MCP at a health system's retail pharmacy between 03/2020-

12/2021 were included. Persistent filling was defined as 1 MCP fill within 15 days post-discharge from KT and at least 3 fills within the observation period of 180 days. Recipients who filled MCP at an outside pharmacy or received medications through a patient assistance program were excluded. Donor/recipient characteristics, induction agents, and clinical outcomes were collected. Discharge date, MCP prescription data, and sold dates were used to calculate PDC at 180 days following discharge. A timeline was created for each day in the observation period with adjustments to account for hospital readmissions and dose changes. Recipients were stratified into two cohorts: PDC <80% and PDC > 80%.

**RESULTS:** Forty-eight recipients were included in data analysis (n=7 in PDC < 80%, n=41 in PDC ≥ 80%). Table 1 summarized donor/recipients characteristics, induction therapies, and prescription details. Recipients in PDC <80% cohort received more kidneys from DCD donors and donors with higher KDPI. Those in PDC >80% group had a higher proportion with a positive crossmatch and PRA >50%. PDC and post KT outcomes were included in Table 2. Median PDC at 180 days post discharge were 74% and 98% (P <0.001). KT recipients with PDC <80% had significantly lower eGFR at 90- and 180- day post-transplant (P=0.031 & <0.01 respectively), higher rate of BPAR (P=0.03), and lower graft survival (P=0.002).

**CONCLUSION:** In our diverse KT patient sample, nonadherence to medications, defined by a PDC <80% for MCP, is associated with worsened patient and graft outcomes. Utilizing PDC as an indicator of nonadherence may help to identify patients at higher risk of poor outcomes.

#### PL IX-17

#### OUTCOMES OF A STANDARDIZED ANTIBODY-MEDIATED REJECTION TREATMENT PROTOCOL IN HEART TRANSPLANT RECIPIENTS

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**PURPOSE:** Antibody-mediated rejection (AMR) in heart transplant recipients (HTR) portends poor clinical outcomes. Reported mortality range between 20-50%, with higher rates reported for late AMR occurring at least 1 year after transplantation. Optimal

AMR treatment in HTR is unknown and impact of treatment on long-term outcomes remains limited. We examined the AMR treatment outcomes in HTR using our institution's standardized treatment protocol after implementation in January 2016.

**METHODS:** Adult HTR who received AMR treatment between January 2016 and November 2020 were retrospectively reviewed. Combined organ transplants were excluded. Patients were treated for AMR if they had positive donor specific antibodies (DSAs) and/or positive endomyocardial biopsy (EMB). Outcomes included all-cause mortality, need for re-transplantation, freedom from inotropes, freedom from hospitalization, DSA trend, symptom improvement, and adverse drug effects (ADEs).

**RESULTS:** Forty HTR were included in the study. Majority of patients had a positive EMB (59%), were symptomatic (85%), and presented as late AMR (90%). Concurrent acute cellular rejection (ACR) ≥2R was observed in 5% of patients. Anti-human leukocyte antigen (HLA) DSAs were positive in 39 patients, of which 41% had Class II DSAs and 56.4% had both Class I and II DSAs. C1q positive DSAs were present in 89.7% of patients. One patient had non-HLA DSAs. Nine patients (22.5%) required repeat AMR treatment for persistent or worsening symptoms, DSAs, and/or positive EMB. One patient required re-transplantation by 12 months posttreatment. Symptom improvement occurred in 56.4% of patients by 6-months posttreatment. However, 28.2% had no change or worsening DSAs, which was more common in those with Class II immunodominant DSAs. Mortality rate was 15% and 44.7% of patients were alive, free of hospitalization at 12-months posttreatment. Eight patients had early treatment discontinuation due to ADEs, of which most common was bone marrow suppression.

**CONCLUSION:** Despite most patients having late AMR, mortality rate in this cohort of HTR who received AMR treatment after implementation of a standardized protocol was 15%, which is lower than previously reported mortality rates. Further studies are warranted to evaluate optimal AMR treatment regimens and assess longer outcomes of AMR in HTR.

#### PL IX-18

#### SAFETY AND EFFICACY OF DARBEPOETIN ALFA DOSING STRATEGIES IN RENAL TRANSPLANT RECIPIENTS

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**PURPOSE:** Post-transplant anemia (PTA) is a common phenomenon in renal transplant recipients (RTR). There are currently no consensus guidelines for PTA, however patients are commonly treated with erythropoiesis-stimulating agents such as darbepoetin alfa (DA). While previous studies have shown the efficacy of DA in RTR with PTA, optimal dosing remains controversial. The purpose of this study is to evaluate two dosing strategies for DA in RTR with PTA.

**METHODS:** This retrospective cohort study was conducted in RTR who received at least one dose of DA from September 2019 to August 2021 at Baylor All Saints in Fort Worth and January 2021 to August 2021 at Baylor University Medical Center in Dallas. Patients were stratified into 2 groups: high fixed-dose (HFD) of 200 mcg or weight-based dose (WBD) of 0.45 mcg/kg. Primary outcome was a composite of hemoglobin (Hgb) > 10 g/dL and freedom from blood transfusion by 12 weeks post DA initiation. Secondary outcomes include the median dose of DA, median number of DA doses per patient, change in baseline Hgb, and GFR estimated by the six variable Modification of Diet in Renal Disease (MDRD6) equation at 12 weeks. Safety outcomes include the incidence of myocardial infarction, stroke, venous thromboembolism (VTE), and mortality.

**RESULTS:** Of the 110 patients that received at least one dose of DA, 49 (45%) received WBD and 61 (55%) received HFD. Baseline characteristics were similar between groups except for more Alemtuzumab use in HFD (35.3% vs 5.6%,  $p=0.005$ ) and rabbit anti-thymocyte globulin in the WBD group (94.4% vs 64.7%,  $p=0.005$ ). The WBD group had a significantly higher incidence of the primary composite outcome compared to the HFD group (61.2% vs 41%; OR, 2.27; 95% CI, 1.05-4.9;  $p=0.036$ ). While median number of doses were higher [4 (IQR, 2-6) vs. 2 (IQR, 1-4)], the WBD group had lower cumulative exposure by 250%. The WBD group experienced a 1.5 g/dL increase in baseline Hgb compared to a 1.2 g/dL increase in the HFD group. There was a trend for higher median MDRD6 at 12 weeks with the WBD group [53 mL/min/1.73m<sup>2</sup> (IQR, 37.0-67.9) vs. 46.6 mL/min/1.73m<sup>2</sup> (IQR, 31.6-60.1)]. Regarding safety, there were 3 VTE events and 1 death in the WBD

group and 2 VTE events and 2 deaths in the HFD group.

**CONCLUSION:** This study demonstrates that WBD of DA in RTR with PTA is significantly associated with a higher incidence of achieving a Hgb > 10 g/dL and freedom from blood transfusion compared to HFD despite lower cumulative DA exposure. Rates of adverse events were also similar between both groups. This study highlights that WBD of DA in PTA is safe and effective, with potential for significant patient and health-system cost savings.

## PL IX-19

### AN OBSERVATION OF POST OPERATIVE ATRIAL FIBRILLATION IN PATIENTS POST LUNG TRANSPLANT AT MEMORIAL HERMANN- TEXAS MEDICAL CENTER.

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**PURPOSE:** Lung transplant is a lifesaving option for patients with end stage pulmonary disease such as chronic obstructive pulmonary disease, emphysema, cystic fibrosis, and  $\alpha$ -1 antitrypsin deficiency. Though lung transplant is a beneficial option, it does not come without risks including graft failure, pulmonary edema, infections, and atrial arrhythmias. Atrial fibrillation has been studied as a complication after cardiovascular surgery and is among the most common complications post lung transplant. An incidence of 20-39% has been reported in patients post lung transplant. This can lead to a prolonged hospital stay, increase risk of stroke, and increased mortality if not treated properly. Metoprolol is a selective beta blocker that has been studied as pharmacologic prophylaxis in patients undergoing cardiac surgeries. When metoprolol was compared to placebo for the prevention of post-operative atrial fibrillation (POAF), metoprolol was found to reduce POAF by 54%. The purpose of this study is to assess the use of metoprolol as pharmacologic prophylaxis for patients status post lung transplant at Memorial Hermann-Texas Medical Center.

**METHODS:** This was a single center retrospective study. Baseline data was collected through a chart review of patients who received a lung transplant between January 2015 and August 2022. Patients were excluded if they had a permanent pacemaker or an episode of intra-operative atrial fibrillation. Using data collected retrospectively from the institution's

electronic records, we assessed post operative atrial fibrillation and management for patients. Findings observed during the retrospective review were analyzed and results will be discussed in collaboration with department physicians.

**RESULTS:** 36% of patients developed POAF. Although not statistically significant, preliminary results showed a trend towards clinical significance in rates of POAF in patients who received a beta blocker within 48 hours post-transplant compared to those who did not, 32% vs 39%, respectively ( $P=0.562$ ). The time to occurrence of POAF was a median of 5 days (IQR= 2-7 days). Finalized results are to be presented following completion of data analysis.

**CONCLUSION:** Patients post lung transplant are at an increased risk of developing POAF. Based on the interim data of this retrospective study, prophylaxis with metoprolol 48 hours post-transplant did not result in significantly less POAF. Limitations include the small sample size and retrospective design of the study. Future directions should study how beta blocker prophylaxis affects patients with risk factors for developing POAF. Final conclusions to be presented following completion of data analysis.

## PL IX-20

### EVALUATION OF THE IMPACT OF REDUCED IMMUNOSUPPRESSION ON GRAFT-VERSUS-HOST DISEASE (GVHD) AND REJECTION RATES IN ORTHOTOPIC LIVER TRANSPLANT RECIPIENTS

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**PURPOSE:** Determine if implementation of a protocol to decrease immunosuppression in orthotopic liver transplant (OLT) recipients at risk for GVHD decreases rates of GVHD. Additionally, this study evaluated the impacts of decreased immunosuppression on rates of graft rejection and death, as well as the impact of known risk factors on incidence of GVHD.

**METHODS:** A single-center, retrospective chart review was conducted in adult, OLT or combined liver-kidney transplant recipients transplanted from September 12, 2004 to June 30, 2020 at the Liver Institute at Methodist Dallas Medical Center. During this time, a protocol for reduced immunosuppression in patients at risk for GVHD was implemented.

Providers were encouraged to consider discontinuation or reduction in antimetabolite therapy in recipients with a donor-recipient age discrepancy (DAD) greater than 30 years at the time of discharge from their index hospitalization. Patients admitted prior to protocol implementation were included in the pre-intervention cohort (PRE) and patients admitted after were included in the post-intervention cohort (POST). Patients were excluded if they required a re-transplant or died of a cause other than GVHD within one month post-transplant. The primary outcome of this study was incidence of GVHD at one year post-transplant with a diagnosis confirmed by a provider or donor lymphoid chimerism. Secondary outcomes assessed included graft rejection at one year post-transplant, death at one year post-transplant from any cause and risk factors for GVHD.

**RESULTS:** A total of 934 transplant recipients were included for analysis. 325 patients were assigned to the PRE cohort and 609 were assigned to the POST cohort. The average recipient in either cohort was 59 years old, male, Caucasian, listed with a MELD of 25 and had a primary diagnosis of hepatitis C. In the PRE cohort, 75% of patients were on maintenance immunosuppression regimen with an antimetabolite and calcineurin inhibitor vs. 83% in the POST cohort. Incidence of GVHD was  $n=5$  (1.5%) vs  $n=2$  (0.32%) in the PRE vs POST cohort. Incidence of graft rejection at one-year post-transplant was  $n=111$  (33.6%) vs.  $n=173$  (28%) in the PRE vs. POST cohort and average length from transplant to rejection was 70 vs. 84 days. The rate of death at one-year post-transplant from any cause was lower in the PRE cohort vs. the POST cohort.

**CONCLUSION:** Over the course of 15 years at a large community teaching hospital and transplant institute, implementation of a protocol that decreased immunosuppression in patients at risk for GVHD reduced its incidence. Additionally, the decrease in immunosuppression did not confer higher rejection rates after protocol implementation. Further analysis will look at a subgroup of recipients with a DAD greater than 30 years to determine if there was any difference in rates of GVHD or rejection with these higher risk recipients.

## X-A: ID/HIV

### PL X-1

#### EVALUATION OF THE PREDICTIVE VALUE OF METHICILLIN-RESISTANT

**STAPHYLOCOCCUS AUREUS (MRSA) NARES  
POLYMERASE CHAIN REACTION  
SCREENING WITHIN HOSPITALIZED  
PATIENTS.**

Nicole Alilaen, Victoria Burke, Hope Oddo, Lillian Bellfi, Catherine Vu. University Medical Center New Orleans, New Orleans, LA.

**PURPOSE:** While methicillin-resistant *Staphylococcus aureus* (MRSA) nares polymerase chain reaction (PCR) screening utilization has well established evidence for de-escalation of anti-MRSA agents in pneumonia, its utility for de-escalation within other sites of infection is unknown. The purpose of this study is to determine the utility of MRSA nares PCR screening for vancomycin stewardship within infectious diseases associated with site-specific cultures, including culture samples from tissue, blood, urine, respiratory, bone and joint, and sterile body fluid.

**METHODS:** This retrospective, single center study at University Medical Center New Orleans assessed patients from 1 November 2020 to 1 February 2021 and 1 November 2021 to 1 February 2022. The primary cohort included adult patients admitted to the hospital that received an MRSA nares PCR screening. The results of the MRSA nares PCR in the primary cohort were compared with results of clinical cultures taken within 7 days. The primary objective of this study was to determine the negative predictive value (NPV) of MRSA nares PCR screening for infectious diseases with site-specific cultures. Secondary objectives aimed to examine the sensitivity, specificity, and positive predictive value (PPV) of the nares screening. A secondary analysis was included to compare antimicrobial stewardship outcomes pre- and post- integration of in-hospital MRSA nares PCR screening. Descriptive data will be reported regarding time to therapeutic levels for vancomycin, incidence of adverse events attributed to antibiotics, and impact of decolonization agents on MRSA nares PCR results.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

**PL X-2**

**COVID-19 VACCINATION AND FACTORS  
ASSOCIATED WITH ACCEPTANCE**

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**PURPOSE:** To estimate COVID-19 vaccine acceptance rate within a correctional setting and analyze factors that are associated with COVID-19 vaccine acceptance.

**METHODS:** This is a retrospective study. Patients who are at least 18 years of age and have been offered the COVID-19 vaccine from December 11th, 2020 through December 21st, 2021 will be included. Probable factors associated with vaccine acceptance will be collected. The factors include demographics (age, ethnicity, gender), cognitive function (average educational achievement score, or average intelligent quotient), duration of incarceration, COVID-19 vaccine series offered or administered, and COVID-19 susceptible medical conditions as defined by the Centers for Disease Control and Prevention (CDC). Medical conditions that have been identified by the CDC as COVID-19 risk factors include Alzheimer's disease, asthma, coronary artery diseases, cancer, chronic kidney failure, chronic obstructive pulmonary diseases, cystic fibrosis, diabetes, dementia, former smoker, heart failure, human immunodeficiency virus, hypertension, interstitial lung disease, liver disease, overweight and obesity, pulmonary hypertension, sickle cell disease, solid organ or stem cell transplant, stroke, and substance use disorder. The study will compare two independent groups which include the vaccinated and the un-vaccinated study population. The primary purpose of this study is to estimate the acceptance rate of COVID-19 vaccines. The secondary purpose is to estimate and compare vaccine acceptance rate using prespecified factors that may affect the acceptance of COVID-19 vaccine.

**RESULTS:** N/A

**CONCLUSION:** N/A

**PL X-3**

**IDENTIFYING LOCALLY VALIDATED RISK  
FACTORS THROUGH DERIVATION OF A  
CLINICAL PREDICTION SCORE FOR INTRA-  
ABDOMINAL CANDIDA INFECTIONS**

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**PURPOSE:** Intra-abdominal infections (IAI) are associated with prolonged hospitalizations and

significant morbidity and mortality. Often the causative organisms are bacterial, however *Candida* spp. have been associated with IAIs in immunocompromised, surgical, and critically ill patients. Although intra-abdominal candidiasis (IAC) is a serious infection, the benefit must also be balanced with the risk of developing drug resistance and toxicity with unnecessary antifungal therapy. Several prediction scoring models for invasive candidiasis have been published, however, they are not specific for intra-abdominal infections, and external validation of these models may yield weaker performance due to underlying differences in patient populations. Our analysis will include transplant and immunocompromised patients, patient populations generally excluded from other clinical prediction scoring models. The purpose of this study is to identify risk factors for IAC and derive a clinical prediction score to guide use of empiric antifungal therapy at our institution.

**METHODS:** This retrospective cohort study includes patients  $\geq 18$  years of age admitted to UT Southwestern Medical Center from July 1, 2010 to July 1, 2021. Patients with an abdominal source culture positive for *Candida* spp. (cases) or other non-*Candida* organism (controls) taken intraoperatively or from a drain placed within 24 hours of index culture collection were included. Patients requiring peritoneal dialysis or with a peritoneal dialysis catheter in place were excluded. Any subsequent encounters following the first encounter for which the patient was included in the data analysis were excluded. The primary objective is to derive a clinical prediction scoring model for IAC. Secondary risk analyses will be performed for select subpopulations (i.e., solid organ or hematopoietic stem cell transplant, other immunocompromised patients, cirrhosis, and patients with non-albicans candidemia). Approximately 262 patients will be included and randomly subdivided into derivation and validation cohorts with an approximate 2/3 and 1/3 distribution, respectively. Multivariable logistic regression will be used to identify risk factors for IAC within the derivation cohort. Sensitivity, specificity, positive predictive value (PPV), and negative predicted value (NPV) will be calculated for different scores to define the optimal score. The validation cohort will be used to determine the area under the curve of the receiver operator curve (AUC-ROC), sensitivity, specificity, PPV, NPV, and overall accuracy of the derived model.

**RESULTS:** The cohort identified includes 131 cases and 131 controls. Further analysis in progress.

**CONCLUSION:** In progress

**PL X-4  
ASSOCIATION OF INFECTION  
RECURRENCE WITH ORAL STEP-DOWN VS  
CONTINUED INTRAVENOUS  
ANTIMICROBIAL THERAPY IN PATIENTS  
WITH COMPLICATED INTRA-ABDOMINAL  
INFECTION**

Stephanie Anderson, James Sanders, Sara Hennessy, James Cutrell, Jeffrey Tessier, Meagan Johns, Esther Bae, The University of Texas Southwestern Medical Center, Dallas, TX

**BACKGROUND:** Complicated intra-abdominal infections (cIAIs) are often associated with systemic signs and symptoms of illness and require early source control and appropriate antimicrobial therapy. Although management guidelines and recent trials support a short antimicrobial therapy duration of 4 to 7 days after adequate source control, many patients still do not achieve adequate source control and require long-term antimicrobial therapy. Long-term outpatient parenteral antimicrobial therapy (OPAT) can carry risks, such as line-associated infections and thromboses. Data are currently limited in comparing the effectiveness and safety of oral step-down versus intravenous-only antimicrobial therapy in cIAIs.

**METHODS:** The purpose of this single-center, retrospective chart review study is to compare the rates of recurrent infections associated with oral step-down and intravenous-only antimicrobial therapies for treatment of cIAIs. This study will include adult patients ( $\geq 18$  years old), hospitalized at UT Southwestern Medical Center (UTSW) with diagnoses of IAI. To maximize the yield of collecting patients with cIAI, only patients who received at least 7 days of intravenous antimicrobial therapy from the date of admission will be included. Oral step-down therapy will be divided into early oral step-down, defined as transition to oral antimicrobials after 8 to 14 days of intravenous therapy, and delayed oral step-down defined as transition after greater than 14 days of intravenous therapy. Exclusion criteria include: primary peritonitis, peritoneal dialysis catheter-related peritonitis, liver abscesses, necrotizing pancreatitis, and repeat hospitalizations. The primary outcome is infection recurrence, defined as re-initiation of antimicrobial treatment with the same or broader-spectrum regimen after a treatment-free period of  $\geq 3$  days. The secondary endpoints include: treatment escalation (defined as the addition of an antimicrobial,

or switch to a new antimicrobial with a broader-spectrum, within 7 days of the start of antimicrobial therapy due to cIAI), need for repeat source control during planned antimicrobial therapy, treatment-related complications (i.e., line-related complications and antimicrobial-related adverse effects), and all-cause mortality.

**RESULTS:** Two hundred and fifty patients were included in this study: 199 intravenous only, and 51 oral step-down (35 early vs 16 delayed). Overall, baseline characteristics are similar between groups. Preliminary analysis shows in the intravenous-only group, 13% (26/199) experienced infection recurrence compared to 17.6% (9/51) in the oral step-down group, both early and delayed. Full analysis of data will be complete by April 2021.

**CONCLUSION:** Conclusion will be presented upon completion of data analysis.

#### PL X-5

##### IDENTIFYING LOCALLY VALIDATED RISK FACTORS THROUGH DERIVATION OF A CLINICAL PREDICTION SCORE FOR CANDIDEMIA

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**PURPOSE:** Candidemia is associated with longer hospital stays, increased mortality, and substantial healthcare costs necessitating strategies to identify patients more reliably who are at risk and expedite antifungal therapy initiation. Clinical prediction scores have been developed to identify patients at the highest risk for developing candidemia; however, external validation of these models may yield weaker performance due to underlying differences in patient populations. Therefore, the purpose of this study is to develop a clinical prediction scoring model for candidemia in a cohort more representative of our institution's patient population.

**METHODS:** The Institutional Review Board has approved this retrospective cohort study. This study includes patients  $\geq 18$  years of age admitted to UT Southwestern Medical Center from July 1, 2010 to July 1, 2021 with either a positive blood culture for *Candida* spp. (cases) or no positive blood culture for *Candida* spp. matched to cases based on age and date of ICU admission (controls). Patients treated at an outside facility prior to index admission will be

excluded. The primary objective is to derive a clinical prediction scoring model for candidemia. Secondary risk analyses will be performed for select subpopulations (i.e., solid organ or hematopoietic stem cell transplant, other immunocompromised patients, cirrhosis, and patients with non-albicans candidemia). Approximately 300 patients will be included and randomly subdivided into derivation and validation cohorts with an approximate 2/3 and 1/3 distribution, respectively. Multivariable logistic regression will be used to identify risk factors for candidemia within the derivation cohort. Sensitivity, specificity, positive predictive value (PPV), and negative predicted value (NPV) will be calculated for different scores to define the optimal score. The validation cohort will be used to determine the area under the curve of the receiver operator curve (AUC-ROC), sensitivity, specificity, PPV, NPV, and overall accuracy of the derived model.

**RESULTS:** The cohort identified includes 197 cases and 175 controls. Further analysis in progress.

**CONCLUSION:** In progress

#### PL X-6

##### UTILITY OF EMPIRIC METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS COVERAGE IN THE TREATMENT OF PERIANAL AND PERIRECTAL ABSCESES.

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**PURPOSE:** The incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) continues to rise and is the most common cause of purulent skin and soft tissue infections (SSTIs) in the United States. Current SSTI guidelines do not routinely recommend MRSA coverage for abscesses unless defined criteria are met for a "moderate" or "severe" abscess (e.g. systemic signs of infection, history of incision and drainage plus antibiotic failure, immunocompromised status). Still, the precise role of empiric MRSA-active antibiotics in the treatment of perianal and perirectal abscesses is unclear as anorectal abscesses were excluded from a majority of the studies upon which current recommendations are founded. Thus, current SSTI guidelines may not be directly applicable to the treatment of perianal and perirectal abscesses, and overall, data is limited. The current study aims to assess the utility of empiric MRSA coverage in perianal and perirectal abscesses.

**METHODS:** In this single-center, retrospective study, Veteran patients who presented to the facility's emergency department (ED) between July 1, 2011, and July 31, 2021, and were diagnosed with perirectal and/or perianal abscess(es), as identified by respective International Classification of Diseases (ICD) codes, were considered. Furthermore, to be included, the index abscess must have been the first occurrence within the defined study period and incision and drainage of the abscess were performed. The primary outcome was clinical failure at 14 days after initial presentation date, defined as return to the ED for the index abscess resulting in clinical intervention, unplanned primary care provider visit for index abscess resulting in clinical intervention, unplanned surgical procedure or hospitalization for the index abscess and/or any associated SSTI, and signs and symptoms of clinical worsening (i.e. increased swelling, tenderness, induration; growth in erythema; growth in abscess dimension; or fever greater than 38°C). Secondary outcomes include risk factors associated with MRSA infections, risk factors for clinical failure, rate of clinical failure within 30 days and within 90 days of initial presentation, utility of anaerobic organism coverage, and incidence of bug-drug mismatch.

**RESULTS:** Research in progress.

**CONCLUSIONS:** Research in progress.

#### PL X-7

##### EVALUATION OF ANTIBIOTICS FOR TREATMENT OF URINARY TRACT INFECTION FROM A HOSPITAL EMERGENCY DEPARTMENT

Samantha R. Carson, Bryan Donald, Amber Grady, Tam LaBranche, Woman's Hospital, Baton Rouge, LA.

**PURPOSE:** Urinary tract infections (UTIs) are one of the most common indications for antimicrobial prescriptions. However, poor adherence to guidelines may result in the inappropriate selection of therapy or duration, leading to increased antimicrobial resistance. Increased resistance is associated with negative outcomes for patients, such as longer treatment, increased hospitalization, and death. The purpose of this study is to evaluate Infectious Disease Society of America (IDSA) guideline adherence of prescription antibiotics for the treatment of UTIs through a hospital emergency department.

**METHODS:** This single-center, retrospective, quality improvement study collected data from a six-month period. Using electronic health record data for patients who were treated for or met criteria for treatment of a urinary tract infection, the following information was evaluated: patient allergies, pregnancy status, prescription order, microbiology reports, laboratory results, and antibiotic use within the last 90 days. The primary outcome of this study was to evaluate the overall compliance to IDSA guidelines for treatment of urinary tract infections, defined as first-line preferred antibiotic choice, dose, and duration. Inappropriate compliance included empirically utilizing second line treatment without a compelling indication. Descriptive statistics for categorical data were calculated as frequency and percentage, and comparisons between groups utilized Chi-square tests.

**RESULTS:** A total of 200 patients were included in the final analysis. For the primary outcome, 112 of 200 prescriptions (56%) were incorrect empiric drug therapy. Twenty-seven of 98 (27.6%) pregnant patients received incorrect empiric therapy, compared with 85 of 102 (83.3%) non-pregnant patients (OR: 0.08; 95% CI, 0.038 – 0.15;  $p < .001$ ). Upon review of final culture results, 39 (19.5%) patients were prescribed an antimicrobial for which final culture results did not demonstrate sensitivity for the isolated organism. Sub-analysis revealed that 13 (13.3%) pregnant patients compared to 26 (25.4%) non-pregnant patients had an inappropriate pathogen-antimicrobial combination (OR: 45; 95% CI, 0.21 to 0.93;  $p = .029$ ).

**CONCLUSION:** Based on the results of this study, prescriptions from this emergency department for outpatient treatment of UTIs were largely noncompliant to guideline recommendations. In our study, patients that were pregnant were more likely to receive appropriate antibiotic therapy and have appropriate pathogen-antimicrobial combination based on urine culture results compared to non-pregnant patients. Future interdisciplinary planning will help identify further improvement opportunities for IDSA guideline adherence and antimicrobial stewardship compliance, specifically in the fast-paced setting of emergency departments. There remain opportunities for pharmacists to support antimicrobial stewardship efforts and strategies in this critical setting.

## X-B: ID/HIV

### PL X-8

#### ANTIBIOTIC STEWARDSHIP OPPORTUNITIES AT TRANSITIONS OF CARE: ASSESSMENT OF ANTIBIOTIC DURATION FOR UTI, PNA, AND SSTI FROM HOSPITALIZATION THROUGH DISCHARGE

Kayla Kotara, Ryan Keul, CHRISTUS Trinity Mother Frances Hospital, Tyler, Texas.

**PURPOSE:** To assess the appropriateness of duration of therapy for antibiotics prescribed during hospitalization and post discharge at CHRISTUS Trinity Mother Frances Hospital (CTMFH) for urinary tract infection (UTI), pneumonia (PNA), and skin and soft tissue infection (SSTI).

**BACKGROUND:** UTI, PNA, and SSTI are common indications for inpatient and outpatient antibiotic prescriptions. Per regulatory standards, inpatient antimicrobial stewardship programs have largely focused on antibiotic use during hospitalization. However, for patients hospitalized due to infections such as UTI, PNA, and SSTI, it is common for the majority of the antibiotic course to be completed after discharge. Historically, longer durations of antibiotic therapy have been used to treat these types of bacterial infections, as it was hypothesized that shorter courses of antibiotics may lead to progression of infection or development of antimicrobial resistance. However, prolonged durations of antibiotics have been associated with adverse drug events, Clostridioides difficile infection, and future infection due to multi drug resistant organisms (MDRO). Recent literature has pointed towards shorter courses of antibiotics being as effective as longer courses for many indications with less adverse events. Few studies have evaluated the appropriateness of antibiotic duration during the transition from inpatient to outpatient antibiotic therapy in patients being treated for PNA, UTI, and SSTI. Due to a lack of evaluation of antibiotic prescriptions at discharge, it is difficult to know the extent of antibiotic overuse that may occur during this important transition of care period.

**METHODS:** This study is a retrospective, single center, descriptive analysis designed to determine if CTMFH over-utilizes antibiotics, considering both inpatient use and antibiotic prescriptions at discharge for UTI, PNA, and SSTI. The primary endpoint was the average antibiotic duration from inpatient hospitalization through discharge antibiotic

prescription for UTI, PNA, or SSTI. Guideline recommended therapy durations, based on indication, were used to determine antibiotic duration appropriateness. Inclusion criteria consisted of adult patients who received  $\geq 1$  inpatient antibiotic order for selected indication of either UTI, PNA, or SSTI, and then discharged on  $\geq 1$  antibiotic prescription for the same indication. Exclusion criteria included the use of antibiotics for  $\geq 1$  indication, receipt of outpatient parenteral antibiotic therapy, and concomitant bacteremia or bone and/or joint infections.

**RESULTS:** Data collection complete, data analysis in progress.

**CONCLUSION:** Data analysis in progress, final data to be presented.

### PL X-9

#### USE OF LINEZOLID FOR SURGICAL PROPHYLAXIS DURING FLUID SHORTAGE AT CHRISTUS MOTHER FRANCES HOSPITAL FROM DECEMBER 1ST, 2017 TO JUNE 30TH, 2018, A DESCRIPTIVE STUDY.

Tanner Bostick, Vu Ta, CHRISTUS Trinity Mother Frances Hospital, Tyler, Tx.

**PURPOSE:** To describe the population and clinical outcomes for patients who received linezolid as surgical prophylaxis during the fluid shortage of 2018 due to hurricane Maria.

**BACKGROUND:** In September 2017, hurricane Maria devastated the northeastern Caribbean, particularly Puerto Rico who is the United States largest supplier of intravenous saline bags. Hospitals had to conserve IV bags and look for alternative methods of delivery for therapy. At our institution, one strategy was to use linezolid in place of vancomycin in many patient populations. Upon retrospective review it was found that this practice was also used in many cases for surgical prophylaxis. The purpose of this study is to describe the patient population and their outcomes.

**METHODS:** Retrospective data were collected from the institution's electronic health records (EHR) for patients who received linezolid for surgical prophylaxis between December 1st, 2017, until June 30th, 2018. To aid in accuracy, the National Healthcare Safety Network reporting for surgical site infections at CHRISTUS Mother Frances Hospital

will be reviewed and compared to events identified from the EHR.

**RESULTS:** Research in progress

**CONCLUSIONS:** Research in progress

#### PL X-10

##### MEASURING HOSPITAL-SPECIFIC HEALTHCARE COSTS ASSOCIATED WITH PO/IV LINEZOLID VS IV VANCOMYCIN TO ASSESS INPATIENT FINANCIAL BURDEN

Colin Smith, Vu Ta, CHRISTUS Mother Frances Hospital, Tyler, TX

**BACKGROUND:** Linezolid currently has an FDA indication for nosocomial and community-acquired pneumonia. One common deterrent to using linezolid in a hospital setting is high cost. Recent studies have shown that cost per hospital encounter may no longer differ between linezolid and vancomycin use.

**PURPOSE:** To evaluate the direct costs associated with treating empiric or confirmed MRSA pneumonia with linezolid vs. vancomycin and determine if cost difference is a reasonable determinant for favoring one drug over another.

**METHODS:** This is a single-center, pre- and post-implementation study conducted at CHRISTUS Mother Frances Hospital. Linezolid was added as an alternative option to vancomycin for MRSA coverage in the pneumonia order set. Patients were included if they were 18 years of age or older, had clinical suspicion of MRSA pneumonia, had a positive chest x-ray, and received at least 36 hours of study antibiotics. Patients were excluded if they received both study drugs during the hospital encounter, received other antibiotics with the explicit intent to treat MRSA, developed allergy to either study drug, expired within 48 hours of initiation of therapy, or presented with sepsis or confirmed MRSA bacteremia. The primary endpoint is the median cost of treatment to the hospital during the admission. Secondary endpoints include hospital length of stay, mortality, duration of inpatient treatment, clinical success rate, adverse events, and 30-day readmission rates for both MRSA pneumonia and other causes.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL X-11

##### REAL-WORLD UTILIZATION OF SARS-COV-2 ANTIBODIES IN OUTPATIENTS WITH COVID-19

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**PURPOSE:** The aim of this research was to evaluate the impact of early administration of SARS-CoV-2 targeted monoclonal antibodies to patients with mild to moderate COVID-19 who are at high risk for hospitalization. Since the beginning of the Covid-19 pandemic, it has become apparent that certain patients are more likely to suffer from a more severe case of the disease than others often leading to hospitalization and sometimes death. In November of 2020, two monoclonal antibody drugs were granted emergency use authorizations (EUAs) by the FDA for the treatment of mild to moderate COVID-19 in persons who are at high risk for progressing to severe disease and/or hospitalization. These potent antispikes neutralizing monoclonal antibodies include bamlanivimab (LY-CoV55) and casirivimab/imdevimab (REGN10933/REGN10987). Despite the approved EUA by the FDA, and subsequent loss of EUA by bamlanivumab, the efficacy of these antibodies has not been fully established and is still under investigation in randomized clinical trials. Herein we describe the rate of hospitalization/emergency department visits among a group of high-risk patients after administration of SARS-CoV-2 targeted monoclonal antibodies (bamlanivimab or casirivimab-imdevimab).

**METHODS:** This was a dual center retrospective chart review, performed at University Medical Center and Covenant Medical centers, of patients who were diagnosed with mild to moderate COVID-19 who were had received bamlanivimab or casirivimab/imdevimab injections from November 23rd, 2020 to January 28, 2021. This data was compiled from Lubbock County public health records and patient outcomes were tracked for 29 days following the infusion date meaning the last date of record was February 26th 2021. Outcomes tracked included hospitalization, emergency dept visits, or death that occurred within the study period.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

**PL X-12**

**USING NASAL METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) SWABS TO MINIMIZE ANTIBIOTIC EXPOSURE IN LOWER RESPIRATORY TRACT INFECTIONS**

Jasmine Grandpré, Mollie VanNatta, David Wassef, Heather Baker, Olivia Antosz, Elizabeth Stephenson, Jennifer Smith, Ochsner LSU Health Shreveport Academic Medical Center, Shreveport, LA.

**PURPOSE:** To evaluate the impact of a pharmacist-led protocol utilizing nasal swab MRSA polymerase chain reaction (PCR) tests on the days of MRSA-active antibiotic therapy (intravenous vancomycin, intravenous linezolid, or oral linezolid) for empiric treatment of lower respiratory tract infections.

**BACKGROUND:** The incidence of MRSA pneumonia remains low, even in high-risk populations. Despite this, MRSA-active therapy is often started empirically for suspected lower respiratory tract infections. In the absence of reliable respiratory cultures, providers may be reluctant to de-escalate therapy. Exposing patients to unnecessary therapy increases risk of adverse effects, increases hospital length of stay and can lead to antimicrobial resistance. The anterior nares act as a reservoir for MRSA; therefore, colonization can be detected with a nasal MRSA swab screening with PCR assays. Numerous studies have found that nasal MRSA swabs have an extremely robust negative predictive value (NPV) ranging from 94% to 99%, indicating MRSA pneumonia is highly unlikely in the absence of MRSA in the nares. Previous studies have demonstrated that the addition of a pharmacist-led protocol using nasal swab screenings was associated with a shorter duration of therapy of MRSA-active agents without increasing adverse clinical outcomes. These results suggest that MRSA-active empiric therapy can safely be discontinued in patients with a negative PCR result.

**METHODS:** This study implemented a pilot protocol for ordering nasal MRSA swabs for patients started on empiric MRSA-active therapy for the indication of a lower respiratory tract infection. Patients 18 to 89 years of age, with an order for intravenous vancomycin (with a pharmacy to dose consult), intravenous linezolid, or oral linezolid for suspected lower respiratory tract infection were included. Patients were retrospectively reviewed for inclusion in the pre-implementation group based on the inclusion

criteria. Subjects were prospectively enrolled upon implementation if they met the inclusion criteria and received the nasal swab test within 48 hours of initiating anti-MRSA therapy. The two groups were compared for the primary outcome of days of MRSA-active therapy. Secondary outcomes include length of hospital stay, number of vancomycin levels obtained, incidence of MRSA pneumonia confirmed by culture, incidence of PCR to respiratory culture discordance, incidence of acute kidney injury and incidence of *Clostridioides difficile* infection.

**RESULTS:** Data collection and statistical analysis in process.

**CONCLUSIONS:** To be presented upon study completion.

**X-C: ID/HIV**

**PL X-13**

**DETERMINATION OF RISK FACTORS TO PREDICT COMMUNITY-ONSET BACTEREMIA BY EXTENDED-SPECTRUM BETA-LACTAMASE-PRODUCING ENTEROBACTERIALES**

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**INTRODUCTION:** Infections due to extended-spectrum beta-lactamase (ESBL) - producing Enterobacteriales are rising in the United States (US), with many cases being community-onset. Bloodstream infections are a major cause of hospitalization and mortality in the US, with about half being caused by Gram-negative organisms. Blood cultures commonly take days to process and many hospitals lack rapid diagnostic tools to expedite selection of optimal antimicrobial therapy. A prediction tool to identify patients at high risk for ESBL bloodstream infections could assist in proper selection of empiric antimicrobial therapy, potentially minimizing the risk of treatment failure and increased resistance. Past literature has identified common risk factors associated with ESBL bacteremia, but gaps in the literature exist in regard to differentiating between hospital- and community-acquired cases and their associated risk factors.

**PURPOSE:** To determine the risk factors associated with extended-spectrum beta-lactamase (ESBL)-producing Enterobacteriales in patients with community-onset bacteremia.

**METHODS:** This is a retrospective electronic chart review of patients  $\geq 18$  years old who have been admitted for bacteremia caused by ESBL-producing Enterobacterales (*Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella oxytoca*, and *Proteus spp*) collected  $\leq 48$  hours after admission from January 2020 to August 2021. The primary outcome is the incidence of community acquired ESBL bacteremia in patients with the following: history of ESBL infection ( $\leq 1$  year), recent antimicrobial use ( $\leq 90$  days), recent hospitalization ( $\leq 90$  days), recent emergency department visit ( $\leq 90$  days), presence of indwelling urinary catheter, and presence of feeding tube. The secondary outcome is the association of risk factors to ESBL bacteremia for a locally validated prediction score.

**RESULTS:** Data collection in process.

**CONCLUSIONS:** To be determined.

#### PL X-14

##### UTILITY ASSESSMENT OF A PHARMACY TO DOSE DAPTOMYCIN PROTOCOL: A RETROSPECTIVE COHORT STUDY.

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**PURPOSE:** This study aims to document the utility of a pharmacy-to-dose (PTD) daptomycin protocol by evaluating the accuracy of pharmacist dose selection, adjustments, therapy monitoring, and safety outcomes compared to a cohort without this pharmacy-led service. PTD services describe an established practice where providers consult pharmacists for dosing of various medications. In 2019, our institution approved a daptomycin protocol which allowed pharmacists to select doses based on provider-selected indications, patient renal function, and body mass index (BMI). Our institution offers PTD services for several non-traditional antibiotics.

**METHODS:** A retrospective analysis was conducted using data from four community hospitals within the same health-system. Patients receiving daptomycin at these institutions between July 19, 2019 and October 31, 2021 were reviewed for inclusion in the study. The two comparative cohorts included patients started on daptomycin with and without PTD services. The primary endpoint was the proportion of patients receiving appropriate dosing of daptomycin. Appropriate dosing is defined as evidence-based

regimen that takes into consideration patient weight, renal function, location of infection, and causative organism. Safety endpoints included the proportion of patients receiving appropriate drug therapy monitoring with creatine phosphokinase (CPK) levels.

**RESULTS:** Between all four sites, a combined 297 patients met inclusion criteria, with 128 (43.1%) in the PTD group and 169 (56.9%) in the non-PTD group. Overall, the mean (SD) age of the patients was 59.5 ( $\pm 16.5$ ) years, mean (SD) body mass index was 30.6 kg/m<sup>2</sup> ( $\pm 9.7$ ), and 20.9% required some form of renal replacement therapy at baseline. The most common indication was bacteremia (39.7%) and the most common targeted organism was methicillin-resistant *Staphylococcus aureus* (35%). The primary endpoint of accurate initial dosing occurred significantly more in the PTD group vs non-PTD (92.2% vs 82.8%,  $p = 0.023$ ). Of patients that required dose adjustments during treatment, adjustments occurred more often within the PTD group, but the difference was not significant (80% vs 58.3%,  $p = 0.22$ ). For secondary outcomes related to safety, baseline CPK was ordered significantly more in the PTD group vs non-PTD (88.3% vs 77.5%,  $p = 0.0212$ ). When treatment extended beyond a week, weekly CPK monitoring occurred more often in those orders entered with use of PTD protocol, but the difference was not statistically significant (95.5% vs 83.3%,  $p = 0.086$ ).

**CONCLUSION:** Use of a PTD daptomycin protocol was associated with a significant increase of accurate dosing compared to traditional provider order entry. Baseline CPK monitoring was also significantly improved with PTD. Based on results of this study, PTD protocols offer a mechanism to improve antimicrobial dosing and monitoring. Further studies are needed to assess the impact of a daptomycin PTD on clinical outcomes.

#### PL X-15

##### QUANTIFYING GRAM-NEGATIVE RESISTANCE TO EMPIRIC THERAPY: REPEAT EXPOSURE TO ANTIMICROBIAL THERAPY (RESTART)

Arya Wibisono, Gaielle Harb, Matthew Crotty, Kristen Rahmzadeh, Julie Alexander, Leigh Hunter, Edward Dominguez, Methodist Dallas Medical Center, Dallas, TX

**PURPOSE:** Previous antibiotic exposure is the largest contributing factor to antimicrobial resistance; however, the direct impact exposure has on

subsequent resistance to the same agent is not well described. The purpose of this study was to (1) determine whether the choice of empiric therapy with the same versus a different antibiotic from prior exposure has an effect on the likelihood of in vitro susceptibility against a subsequent gram-negative infection and (2) determine the impact of empiric choices on clinical outcomes.

**METHODS:** This was a single-center, retrospective cohort study of patients hospitalized between April 1, 2017 and April 30, 2021. Patients were included if they were at least 18 years of age, had a gram-negative pathogen identified on blood or respiratory culture, and had previous exposure to an anti-pseudomonal beta-lactam (APBL; cefepime, meropenem, or piperacillin-tazobactam) for at least 2 days in the last 90 days. Patients were excluded if they had a history of an isolate resistant to any of the APBLs being evaluated in the previous 6 months, any antibiotic treatment within 5 days of study inclusion, or previous exposure to more than one APBL. The primary outcome was the susceptibility rate of gram-negative pathogens in patients receiving empiric therapy with the same IV antibiotics from prior (repeat group) compared to patients receiving differing IV antibiotics from prior (change group). Secondary outcomes included intensive care unit (ICU) length of stay (LOS), hospital LOS, and in-hospital mortality.

**RESULTS:** A total of 181 patients were included, 86 patients in the repeat group and 95 in the change group. Baseline demographics were balanced between the two groups in regard to age, gender, type of infection (bacteremia or pneumonia), and infection severity (ICU admission, mechanical ventilation, vasopressor use, and APACHE II score). The most commonly identified pathogens were *Klebsiella* spp. (50/181, 28%), *E. coli* (44/181, 24%), and *Pseudomonas* spp. (34/181, 19%) and did not differ between groups. Pathogen susceptibility to the empiric antibiotic was higher in the repeat group (69/86, 80%) compared to the change group (55/95, 61%;  $p=0.004$ ). After accounting for patients in the change group that received an antibiotic other than an APBL (23/95, 26%), susceptibility rate increased to 81% (58/72) in the change-APBL subgroup. Hospital LOS (median, interquartile range; 11.5, 5-28 vs 14, 7-26.5;  $p=0.346$ ) and ICU LOS (5, 3-16 vs 7, 2-19;  $p=0.725$ ) were not different between the repeat and change groups, respectively. In-hospital mortality was similar between the repeat (14/16, 19%) and change groups (19/95, 20%;  $p=0.517$ ), respectively.

**CONCLUSION:** Susceptibility rates of respiratory or bloodstream gram-negative pathogens were higher with repeat utilization of an APBL than with a change to a different empiric antibiotic from previous exposure in this cohort. In contrast, change to a different APBL than previous exposure (change-APBL) increased the overall susceptibility rate to a level similar to that of the repeat group. Clinical outcomes were similar regardless of repeat utilization or change in antibiotic based on previous exposure. Repeat utilization of an APBL empirically following recent exposure may be a viable clinical option warranting further investigation.

#### PL X-16 IMPACT OF VANCOMYCIN AUC MONITORING ON THE INCIDENCE OF ACUTE KIDNEY INJURY AT A COMMUNITY HOSPITAL

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TX.

**PURPOSE:** To compare and contrast the incidence of acute kidney injury (AKI) between vancomycin trough and area under the curve/minimum inhibitory concentration (AUC/MIC) based monitoring for suspected or confirmed serious methicillin resistant *Staphylococcus aureus* (MRSA) infections.

**METHODS:** A single-center, quasi-experimental, study conducted at a 300-bed community hospital. Patients  $\geq 18$  years of age with stable renal function who were treated with intravenous vancomycin for at least 72 hours for suspected or documented serious MRSA infections were included in the study. Serious MRSA infections were defined as bacteremia, infective endocarditis, pneumonia, and osteomyelitis. Patients treated between June 9, 2020 and December 9, 2020, were evaluated for the trough-based monitoring group, and patients treated between June 9, 2021 and December 9, 2021, were evaluated for the AUC/MIC-based monitoring group. The primary outcome measured was incidence of AKI between the two groups. To assess the incidence of AKI, serum creatinine levels and urine output were reviewed for the duration of vancomycin therapy to determine if the patient met criteria for AKI. Secondary outcomes included total vancomycin exposure and laboratory monitoring costs. Total vancomycin exposure was measured by duration of therapy, total cumulative dose, and dosing interval. Laboratory costs were

assessed using the number of peak and/or trough levels obtained during the course of vancomycin therapy.

**RESULTS:** A total of 128 patients were eligible for inclusion, 64 in the trough-based monitoring arm and 64 in the AUC/MIC-based monitoring arm. Baseline characteristics were similar between the two groups with the exception of mean baseline and peak serum creatinine levels. Mean baseline serum creatinine (0.74 mg/dL vs. 0.62 mg/dL;  $p=0.002$ ) and peak serum creatinine (0.90 mg/dL vs. 0.84 mg/dL;  $p=0.0144$ ) were significantly higher in the AUC/MIC-based monitoring group. For the primary outcome, patients in the trough-based monitoring group had a numerically higher incidence of AKI compared to AUC/MIC-based monitoring, however the difference was not statistically significant likely due to not meeting the predefined sample size to achieve 80% power (9/64 [14.0%] vs. 5/64 [7.8%];  $p=0.396$ ). Cumulative dose and duration of therapy were similar between the two groups, however a significantly higher number of patients in the trough-based monitoring group received doses  $>20$  mg/kg (8/64 [12.5%] vs. 0/64 [0%];  $p=0.006$ ). Mean vancomycin levels drawn per patient were significantly higher in the AUC/MIC-based monitoring group (3.42 draws vs. 2.52 draws;  $p=0.0045$ ), which is expected as monitoring requires both peak and trough levels for pharmacokinetic calculations.

**CONCLUSIONS:** AUC/MIC based monitoring had a lower incidence of AKI, however, this did not reach statistical significance, likely due to this study being underpowered. Additionally, statistical significance was not achieved when comparing total vancomycin exposure between groups. Laboratory costs were higher in the AUC/MIC based monitoring group as both peak and trough levels were required to perform pharmacokinetic calculations. Further studies with a larger sample size are needed to validate these findings.

#### PL X-17

##### ANTIBIOTIC PRESCRIBING ADHERENCE TO NATIONAL GUIDELINES FOR SKIN AND SOFT TISSUE INFECTIONS BETWEEN EMERGENCY DEPARTMENT AND HOSPITALIST PHYSICIANS.

Samantha Garcia, Kathryn Merkel, Daniel Giddings, St. David's South Austin Medical Center, Austin, TX.

**PURPOSE:** Skin and soft tissue infections are common among various healthcare settings in the

United States. The rise of bacterial resistance provides an ongoing challenge for providers to select an antibiotic for these patients. Current studies have evaluated the adherence to the Infectious Diseases Society of America (IDSA) published guidelines and physician prescribing patterns but there is no study that compares emergency medicine and hospitalists prescribing. In an effort to focus antibiotic stewardship endeavors, this study aims to provide a novel approach to assess antibiotic selection patterns in a community hospital among two different provider groups.

**METHODS:** This is a retrospective cohort study of patients  $> 18$  years old admitted to the hospital from the emergency department or transferred from a freestanding emergency department with ICD-9 or ICD-10 codes for cellulitis, abscess, and skin and soft tissue infections at the time of admission between January 2019 to December 2019. Patients who had recent surgery, trauma, concomitant infections, diabetic ulcers, immunosuppression, documented antibiotic allergies or left against medical advice were excluded. The primary outcome is adherence to empiric antibiotic selection according to IDSA guidelines for skin and soft tissue infections between emergency department physicians and hospitalists. Secondary outcomes include antibiotic prescribing discordance between emergency department and hospitalist physicians at the time of admission, bacteria and antibiotic mismatch, length of stay and the need for transfer for higher level of care. Antibiotic adherence to the guidelines was determined by severity and antibiotic selection at the time of admission. Severity was classified as mild, moderate, and severe based on systemic signs of infection that include temperature, white blood cell count, respiratory rate, and heart rate.

**RESULTS:** A total of 195 patients met inclusion criteria from the 577 patient charts reviewed. Antibiotic prescribing adherence to guidelines was demonstrated in 18% and 23% of emergency department physicians and hospitalists respectively ( $P=0.32$ ). Antibiotic prescribing discordance between emergency department and hospitalist physicians at the time of admission was 53%. The included population had an average age of 50 years old, 62% were male, 67% were white and 48% of patients had a body mass index greater than 30kg/m<sup>2</sup>. Comorbidities of the population included 41% with hypertension, 35.8% with diabetes and 20.5% with a history of intravenous drug use. Classification of the skin and soft tissue infections were 48% as non-purulent and

52% as purulent. The average hospital length of stay was 6 days. None of the patients needed to be transferred for higher level of care.

**CONCLUSION:** The results show significant nonadherence to IDSA guideline recommendations and discordance between providers for empiric antibiotics for skin and soft tissue infections. There is an opportunity for the antimicrobial stewardship program to take action to optimize management of this common indication in the hospital setting.

#### PL X-18

##### **COMPARING SAFETY OUTCOMES OF AUC-BASED VERSUS TRADITIONAL TROUGH-BASED MONITORING OF VANCOMYCIN IN HOSPITALIZED PATIENTS.**

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**PURPOSE:** Vancomycin is the mainstay therapy for methicillin-resistant *Staphylococcus aureus* (MRSA) but is associated with significant nephrotoxicity. According to the 2009 American Society of Health-System Pharmacists, the Infectious Diseases Society of America, and the Society of Infectious Diseases Pharmacists, vancomycin troughs should be maintained above 10 mg/dl for all infections, with goals of 15 to 20 mg/dl for patients with complicated infections such as bacteremia, endocarditis, meningitis, osteomyelitis, and *S. aureus* pneumonia. However, at higher doses targeting troughs of 10 to 20 mg/dl, the incidence of vancomycin-induced nephrotoxicity ranges from approximately 30 to 40%. The revised 2020 consensus guideline reviewed by the American Society of Health-System Pharmacists, the Infectious Diseases Society of America, the Pediatric Infectious Diseases Society, and the Society of Infectious Diseases Pharmacists recommends an AUC/MIC ratio of 400–600 mg\*hour/L to achieve clinical efficacy and ensure safety for patients being treated for serious MRSA infections. Despite the guideline update, adoption of AUC monitoring across institutions is less the optimal, with findings from a recent survey of 126 hospital directors of pharmacy and pharmacists showing that approximately 86% of institutions still monitoring vancomycin via trough concentrations. Baylor Scott & White Medical Center in Temple, Texas is such an institution; as such, the purpose of this study is to compare the safety of AUC24-based vs traditional trough monitoring of vancomycin and serve as a model for further adoption

of AUC24 monitoring of vancomycin across the Baylor Scott & White System.

**METHODS:** This study has been approved by the Institutional Review Board. Baylor Scott & White's Epic Hyperspace medical record system will be used to identify hospitalized patients 18 years or older initiated on vancomycin for presumed or confirmed MRSA infection for a minimum of 3 days. The following information will be collected from all eligible patients: age at time of admission, gender, weight (kg), renal (CrCl and SCr) function, calculated APACHE II score and Rifampin category (risk or worse, injury or worse, failure), pertinent past medical history, indication for vancomycin therapy, median cumulative vancomycin dose and duration of therapy (days), median measured trough concentration (mg/L) and AUC24 (mg\*hr/L), vancomycin calculator used, time spent. Medication lists will be screened through the inpatient medication functions of EPIC.

**RESULTS:** Pending.

**CONCLUSIONS:** Pending.

#### PL X-19

##### **IMPACT OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM ON THE TREATMENT OF ASYMPTOMATIC BACTERIURIA**

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**PURPOSE:** To evaluate the effect of pharmacists' interventions in reducing inappropriate prescribing of antibiotics for asymptomatic bacteriuria (ASB).

**METHODS:** THD has a Comprehensive Antimicrobial Stewardship Program under which pharmacists review all positive cultures, including those from urine. A retrospective chart review was conducted to evaluate patients who had a documented pharmacist intervention for inappropriate treatment of ASB between January 1, 2020 and January 31, 2022.

The primary outcomes of this study were to quantify the total number of accepted versus declined pharmacist interventions, and to evaluate the impact of an intervention on the length of therapy. Secondary outcomes were to evaluate antibiotic-related adverse drug effects, and hospital readmissions for a recurrent urinary tract infection (UTI) within 30 days.

**RESULTS:** After screening 59 patients, 41 patients met inclusion criteria (25 in the accepted intervention group and 16 in the declined intervention group, representing a 61% rate of intervention acceptance). Baseline characteristics were similar between the two groups, although the majority of patients were female. The most commonly prescribed antibiotic for ASB was ceftriaxone. The mean  $\pm$  standard deviation in the days of antimicrobial therapy was  $4.88 \pm 2.75$  in the declined intervention cohort versus  $2.88 \pm 2.57$  in the accepted intervention cohort ( $P = 0.02$ ). There was no difference in adverse drug effects or 30-day hospital readmissions for a recurrent UTI between the groups.

**CONCLUSION:** Further education is needed to stop the collection of urine cultures in the absence of urinary symptoms. In addition, an Antimicrobial Stewardship Program can significantly reduce unnecessary treatment of ASB.

## XI-A: ID/HIV-2

### PL XI-1

#### CLINICAL OUTCOMES IN TREATMENT OF EXTENDED SPECTRUM BETA-LACTAMASE PRODUCING E. COLI AND KLEBSIELLA NON-BLOOD, NON-URINE INFECTIONS WITH CARBAPENEMS VS OTHER ANTIBIOTICS.

Alyssa Eaves, Megan Roberts, Peter Nguyen, Tiffany LaDow, Baylor Scott & White Medical Center, Temple, TX.

**PURPOSE:** Treating infections caused by extended spectrum beta-lactamase (ESBL) producing organisms requires balance between choosing effective therapy to optimize outcomes while also practicing antimicrobial stewardship in regards to carbapenem use. Current recommendations for treating non-blood, non-urine ESBL infections with carbapenems are extrapolated from data in bloodstream infections. However, more narrow spectrum antibiotics may be non-inferior to carbapenems in treating these infections. This research seeks to assess clinical outcomes for non-bloodstream, non-urine ESBL E. coli and Klebsiella infections treated with carbapenems compared to other antibiotics and contribute to determining optimal therapy for this infection type.

**METHODS:** This study is a retrospective chart review assessing clinical outcomes of patients with non-urine, non-blood ESBL E. coli or Klebsiella

infections. Eligible patients were 18 years and older admitted to Baylor Scott & White – Temple between 1/1/2018 and 9/30/2021 with non-urine, non-blood culture results positive for ESBL E. coli or Klebsiella who received antibiotics targeted towards the treatment of these culture results. Patients were excluded if they had blood or urine cultures positive for these organisms, were not receiving antibiotics targeted towards the treatment of these organisms, or were transitioned to hospice care within 48 hours of ESBL culture result.

**RESULTS:** A total of 84 patients were included in the statistical analysis, with 38 patients in the carbapenem group and 46 patients in the other antibiotics group. Patients were an average of 62.1 years old, had an average BMI of 29.9 mg/kg<sup>2</sup>, 53.6% patients were male, and 72.6% were white. The most common type of infections were pneumonia (52.4%) and skin and soft tissue infections (19.0%), and 58.3% of infections were caused by E. coli. The most commonly used empiric antibiotics were beta-lactam/beta-lactamase inhibitors (45.2%) and cefepime (32.1%). 42.9% patients were admitted to the ICU. Patients who received carbapenems as targeted therapy were more likely to be Hispanic, have ESRD, and have diabetes. There was no difference in the primary outcome of 30-day mortality between patients who received carbapenems vs those who received other antibiotics (15.8% vs 13.0%,  $p=0.72$ ), or secondary outcomes of 30-day readmission (34.4% vs 40.9%,  $p=0.56$ ), escalation to an alternate antibiotic (3.13% vs 12.8%,  $p=0.14$ ), or resolution of leukocytosis at day 4 (37.8% vs 33.3%,  $p=0.67$ ). Both hospital and ICU length of stay was significantly greater in those who received carbapenems (29.5 vs 17.1 days,  $p=0.003$  and 23.0 vs 12.4 days,  $p=0.045$  respectively).

**CONCLUSION:** In this retrospective analysis, 30-day all-cause mortality in patients with non-urine, non-blood ESBL infections was not significantly different between those who received carbapenems as targeted treatment and those who received other antibiotics. Hospital and ICU length of stay were greater in patients receiving carbapenems, which may reflect greater clinical severity. This study may not be adequately powered to detect a difference between the treatment groups, and differences may exist in subgroups (such as infection type or class of non-carbapenem antibiotic) which were not analyzed.

**PL XI-2  
EVALUATION OF CLOSTRIDIODES  
DIFFICILE STRAIN DIVERSITY,  
RESISTANCE AND RISK FACTORS FOR  
DEVELOPMENT OF RESISTANT  
INFECTIONS.**

Alison Stonecipher, Taryn A. Eubank, Jessica Jones, Jaye Weston, Trager Hintze, Kevin W. Garey. St. Joseph Regional Health Hospital, Bryan, Texas.

**BACKGROUND:** Clostridioides difficile infections are an urgent problem for healthcare systems. Endemic resistant strains of C. difficile, as defined by their ribotype, have made treatment more complicated. For instance, ribotype 027 is associated with more severe infections due to increased toxin production and antibiotic resistance. The purpose of this study was to determine which ribotypes are implicated in C. difficile infections treated at a rural community hospital, as well as the rate of vancomycin and fidaxomicin resistance. Known risk factors will be collected for a descriptive analysis to explore correlations with resistant strains.

**METHODS:** C. difficile positive stool samples were obtained from St. Joseph Regional Health and other hospitals and clinics within the system. Stool was enriched in 5 ml of brain heart infusion (BHI) broth and anaerobically incubated for 48 hours. A 10 microliter loop of enriched stool was plated onto cycloserine-cefoxitin fructose agar (CCFA) to select for C. difficile, then anaerobically incubated for an additional 48 hours. Sub-culturing on blood agar occurred for sample purification. One pure colony was inoculated in 5 ml of BHI broth and incubated 24 hours in preparation for agar dilution minimum inhibitory concentration (MIC) methods in accordance to Clinical and Laboratory Standards Institute (CLSI) guidance. Two microliters of enriched sample were spotted on supplemented brucella blood (sBB agar) agar plates with varying dilutions (0.25 - 16 mg/L) of desired antibiotic. Resistance was defined as MIC greater than 2 mg/L. Strain typing is completed by fluorescent polymerase chain reaction (PCR) ribotyping. Data collection was completed by chart review of the electronic health record.

**RESULTS:** From 2021 to 2022 32 samples were sent off for analysis. Vancomycin MICs have been determined on 24 samples. Patient data was available on 20 of the 32 samples. Male patients comprise 35% of the patients and 45% were over the age of 65 years. There was one in hospital death and 30% of the

infections were hospital acquired. One patient was treated with fidaxomicin and seven treated with metronidazole concurrently with oral vancomycin while the remaining were treated with vancomycin monotherapy. The most common dosing utilized for oral vancomycin was 125mg administered four times daily. Vancomycin resistance was identified in 16.7% of the C. difficile samples. Due to supply chain limitations fidaxomicin MICs and ribotyping results are pending laboratory analysis.

**CONCLUSION:** The rate of vancomycin resistance of 16.7% was higher than expected in our rural community. Although 4 samples were resistant to vancomycin only 1 patient was determined to have clinical treatment failure with vancomycin and required fidaxomicin therapy. Since fidaxomicin represents such a large financial burden, particularly to smaller community hospitals, this research could help determine if the switch to first-line therapy would be a financial advantage as well. Other potential implications of this research are a hospital protocol change to align with recent guideline recommendations on fidaxomicin as first-line therapy and routine development of a local antibiograms for C. difficile.

**PL XI-3  
PATIENT OUTCOMES ON REMDESIVIR  
ACCORDING TO BASELINE 4C MORTALITY  
SCORE**

Jacob A. Sellers, Jessica Jones, Trager Hintze, CHI St. Joseph Health Regional Hospital, Bryan, TX.

**PURPOSE:** Remdesivir has shown to decrease time to recovery in patients with moderate-to-severe COVID-19 pneumonia compared to placebo in patients who are hospitalized, on supplemental oxygen, and symptom onset within 10-days of receiving the first dose. Current guidelines recommend initiation of remdesivir based on hospitalization status and oxygen requirement. However, other factors, such as the validated 4C mortality score, may have value in further determining the benefit of remdesivir. The aim of this study was to determine the utility of the 4C mortality score in determining which patients will benefit most from remdesivir therapy.

**METHODS:** This retrospective cohort study compared outcomes in hospitalized patients with COVID-19 pneumonia who were treated with remdesivir vs those who did not receive remdesivir. To

meet inclusion criteria, patients needed all variables required to calculate a 4C mortality score at baseline (age, sex, number of comorbidities, respiratory rate, peripheral oxygen saturation on room air (SpO<sub>2</sub>), Glasgow Coma Scale (GCS), urea/blood urea nitrogen, and c-reactive protein). To ensure only patients with moderate-to-severe disease were included, patients also needed to have radiographic evidence of pulmonary infiltrates, SpO<sub>2</sub> ≤ 94% on room air, and/or receive at least supplemental oxygen. Patients were excluded if they had an AST/ALT greater than five-times the upper limit of normal, an estimated glomerular filtration rate <30 mL/min/1.73m<sup>2</sup>, or pregnant. The primary outcome was time to recovery, defined as being discharged from the hospital or no longer requiring supplemental oxygen, stratified by the 4C mortality score. Secondary outcomes included in-hospital mortality, hospital length of stay, and time to oxygen discontinuation. Additional secondary outcomes include time to recovery in patients according to vaccination status and initiation of remdesivir before vs after 7-days since symptom onset. Data was interpreted using a survival analysis.

**RESULTS:** This retrospective cohort study included 200 patients.. A total of 100 patients received remdesivir and 100 patients received standard of care. Among the treatment group, the average age was 57 and 50% of patients were male. The average 4C mortality score was just below 7 which predicts a mortality risk of about 8-12%. The average length of stay was about 12 days and the in-hospital mortality rate was 16%.

**CONCLUSION:** Conclusion pending further data analysis.

#### **PL XI-4 VANCOMYCIN AREA UNDER THE CURVE TARGET ATTAINMENT USING A FIRST ORDER ANALYTIC EQUATIONS CALCULATOR**

Hevron Hail Censon

**PURPOSE:** Vancomycin trough serum concentrations have been utilized as a surrogate marker for the attainment of area under the curve to minimum inhibitory concentration (AUC:MIC) goal of 400 mcg•h/mL. Recently updated dosing guidelines now recommend using Bayesian dosing software or first order analytic equations to estimate a vancomycin AUC. The greatest factor driving the change is the

reduction of vancomycin-induced kidney injury. The use of pharmacokinetic (PK) equations has been the favored option by some facilities which lack the means to purchase Bayesian software; however, it does have limitations. The purpose of this study is to evaluate accuracy of analytic PK equations in attaining therapeutic AUC levels.

**METHODS:** This was a retrospective, single center, observational study of 403 adult hospitalized patients conducted from July to November 2021. Patients receiving intravenous vancomycin therapy greater than 24 hours for indications requiring an AUC:MIC of 400–600 mcg•h/mL were included. Patients were excluded if they received any form of renal replacement therapy within 72 hours of vancomycin initiation. Other exclusion criteria included creatinine clearance < 30 ml/min, pregnancy, or a vancomycin indication of surgical prophylaxis, skin & soft tissue infection, or urinary tract infection. Vancomycin was dosed utilizing a home-grown first-order pharmacokinetic equation calculator. The group was evaluated to determine if the calculated empiric dose yielded an observed AUC:MIC within therapeutic goal at steady state. For those outside the therapeutic range, patient-specific PK data was used to adjust the vancomycin regimen. The rates of target attainment and AKI were assessed. AKI was defined as an increase in serum creatinine > 0.3 mg/dL any time after first vancomycin dose.

**RESULTS:** A total of 1455 patients were reviewed for inclusion. Of the 403 patients who met criteria for inclusion, 211 (52.4%) were therapeutic at steady after empiric calculations. There were 129 patients (32.0%) that were subtherapeutic, and 64 patients (15.8%) that were supratherapeutic. When stratified by month, initial therapeutic attainment rate improved over time (47% in July to 55.9% in October). In the 64 patients that had supratherapeutic levels, only 3 (4.7%) had therapeutic levels after primary dose adjustments. Four patients (6.3%) were subsequently subtherapeutic, and 8 (12.5%) remained supratherapeutic. The remainder, 49 (76.6%), had vancomycin therapy discontinued. In 129 patients that had subtherapeutic levels initially, 33 (25.6%) achieved therapeutic AUC after dose adjustment. Sixteen (12.4%) remained subtherapeutic, and 10 (7.8%) were subsequently supratherapeutic. Seventy (54.3%) had vancomycin discontinued. Overall, 247 out of 403 (61%) achieved a therapeutic AUC goal, while 31 out of 403 (7.69%) met criteria for vancomycin induced AKI.

**CONCLUSIONS:** The use of a first-order pharmacokinetic calculator resulted in AUC target attainment for more than half of patients with relatively low rates of AKI. Improvement in target attainment was noted as pharmacists gained experience with the dosing tool.

#### PL XI-5

##### **EVALUATION OF EMPIRIC PIPERACILLIN-TAZOBACTAM VERSUS MEROPENEM FOR THE TREATMENT OF SEPSIS IN CRITICALLY ILL PATIENTS**

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**PURPOSE:** To assess and compare the empiric use carbapenem-sparing piperacillin-tazobactam in critically ill sepsis patients at CHRISTUS Spohn Shoreline compared to meropenem. Currently, clinicians may use either agent for gram negative coverage in this disease state. The outcome of 30 day mortality was assessed using the surrogate endpoint of clinical stability at 48 hours.

**METHODS:** We gathered data retrospectively from CHRISTUS Spohn Shoreline's electronic medical records system. Patients were identified using VigiLanz software.

**RESULTS:** An analysis of 105 total patients was performed, 31 in the meropenem arm and 74 in the piperacillin-tazobactam arm.

**RESULTS:** Out of 105 patients analyzed, 13 out of 31 patients in the meropenem arm achieved clinical stability, whereas in the piperacillin-tazobactam arm, 37 out of 74 patients achieved clinical stability at 48 hours (P=0.45).

**CONCLUSION:** Based on the data, piperacillin-tazobactam did not demonstrate clinically significant difference in 48-hour stability compared to meropenem. Secondary outcome analysis is currently in progress.

#### PL XI-6

##### **EVALUATION OF THERAPEUTIC DOSING VERSUS THROMBOPROPHYLAXIS DOSING LOW-MOLECULAR-WEIGHT HEPARIN OR UNFRACTIONATED HEPARIN IN CRITICALLY ILL COVID-19 PATIENTS.**

Thao D. Nguyen, Rockridge Hannah, CHRISTUS St. Michael Health System, Texarkana, TX.

**PURPOSE:** Severe covid-19 pneumonia has associated with an increased risk of thrombosis and acute kidney injury requiring renal replacement therapy. Limited data have shown that therapeutic dosing anticoagulant therapy is associated with improved gas exchanged in severely ill covid-19 patients. However, recent clinical trials have shown that therapeutic dosing anticoagulants compared to thromboprophylaxis dosing has improved survival probability with fewer cardiovascular or respiratory support in non-critically ill COVID-19 patients, but not in critically ill COVID-19 patients. The primary objective of this research is to re-evaluate the use of organ-support therapy in therapeutic dosing versus thromboprophylaxis dosing anticoagulant groups in critically ill covid-19 patients. Concurrently, the study evaluates mortality rate, events of acute kidney injury (AKI) requiring renal replacement therapy (RRT), gas exchange improvement, and major bleeding events.

**METHODS:** This research is a single-center retrospective chart review to evaluate the dosing of anticoagulants (unfractionated heparin, UFH, or enoxaparin). The dosing of anticoagulants (UFH and enoxaparin) was based on hospital protocol. Data were collected from electronic health records and the VigiLanz clinical surveillance platform from January 1, 2020, to July 31, 2021. Collected data includes patients' demographic, laboratory results, anticoagulant dose, treatment duration, days without the use of organ-support therapy, oxygen support, vasopressors, inotropes, or RRT. Additionally, events of death, AKI with RRT, PaO<sub>2</sub>/FiO<sub>2</sub> ratio, and major bleedings were recorded. Finally, the primary and secondary outcomes will be analyzed by the Mann-Whitney U test for statistically significant differences between the two treatment groups.

**RESULTS:** An analysis of 78 patients was performed, with n=57 in the therapeutic dosing group and n=21 in the thromboprophylaxis dosing group. The median value for organ-support free days was -1 in both therapeutic and thromboprophylaxis anticoagulant groups, (95% CI, -0.00 - 0.00, p=0.113). The mortality rate was not significantly different between the therapeutic dosing group and the thromboprophylaxis dosing group (64.9% vs. 71.4% with OR 0.74, [95% CI, 0.25 - 2.21, p=0.59]). The percentage of patients who developed AKI requiring RRT was similar in the two groups (15.8% vs 19.0%, respectively, p=0.74).

The PaO<sub>2</sub>/FiO<sub>2</sub> ratio difference from day 21 to day 1 treatment was not significantly different in therapeutic and prophylaxis dosing groups (42.4% vs. -3.2%, respectively,  $p=0.076$ ). Major bleeding events occurred in 7.0% in the therapeutic dosing group and 14.3% in the thromboprophylaxis group, OR 0.45 (95% CI, 0.09 – 2.22,  $p=0.33$ ).

**CONCLUSION:** Therapeutic dosing anticoagulant did not significantly decrease organ- support use, mortality rate, and development of AKI requiring RRT in critically ill covid-19 patients as compared to thromboprophylaxis dosing anticoagulant.

#### PL XI-7

##### **EFFICACY OF BARICITINIB AT REDUCING HOSPITAL LENGTH OF STAY**

Katy Chau, Hannah Rockridge, CHRISTUS St. Michael Health System, Texarkana, TX.

**PURPOSE:** The primary study objective is comparing the hospital length of stay in patients receiving Baricitinib versus patients not receiving Baricitinib for their Covid-19 treatment. Furthermore, this research examines if Baricitinib decreases the mortality rate.

**METHODS:** This study is a single-center retrospective chart review designed to examine the Efficacy of Baricitinib at Reducing Hospital Length of Stay from August 1, 2021 to November 30, 2021. The data was collected on patients who received Baricitinib versus patients who did not receive Baricitinib for their Covid-19 treatment were collected from electronic health records (EHR) and the VigiLanz clinical surveillance platform. Information was gathered on patient demographics, admitting diagnosis, Covid-19 positive diagnosis, dosing and duration of Baricitinib, hospital length of stay, and mortality. Additional information includes complete blood count such as the counts of neutrophil, lymphocyte, platelet, and inflammatory markers such as ferritin, lactate dehydrogenase, and c-reactive protein. The data was analyzed with t-Test: Two Sample Assuming Equal Variances to identify the means of hospital length of stay and mortality between both groups. Furthermore, inferential statistics by way of the t-Test was used to determine if there was a statistically significant difference between the patients receiving Baricitinib treatment vs patients not receiving Baricitinib treatment in terms of hospital length of stay and mortality.

**RESULTS:** A total of 938 patient charts were reviewed, of which 419 patients received a 14 days treatment of Baricitinib or until hospital discharge ( $n=151$ ) and none Baricitinib treatment group ( $n=268$ ) met the criteria for inclusion. An analysis of charts collected between both groups revealed similar average patient age (56 vs 63: y/0) and gender (male 48%, female 52% vs male 55%, female 45%). The primary outcome of the hospital length of stay in days was significantly different between the two groups. For patients receiving Baricitinib, Mean  $\pm$  SD:  $11.7 \pm 9.95$  vs for patients not receiving Baricitinib, Mean  $\pm$  SD:  $8.5 \pm 9.96$ ,  $\alpha 0.05$ , 95% CI (1.23 - 5.21),  $p=0.0016$ , t-statistic value  $>$  t-critical value ( $3.17 > 1.96$ ). The secondary outcome was significant for the decrease in mortality in the treatment group vs none treatment group,  $p=0.014$ ,  $\alpha 0.05$ , t-statistic value  $>$  t-critical value ( $2.18 > 1.96$ ).

**CONCLUSION:** This research presented data signifying that for Covid-19 patients who received 14 days of Baricitinib treatment or until hospital discharge did not decrease hospital length of stay. In addition, patients in the treated group have a longer duration of stay. The difference in increased hospital stay could be related to these patients being critically ill versus patients who are in the none treated group whose conditions are less critical. The data did articulate that patients receiving Baricitinib had mortality rates which were significantly fewer than those patients who did not receive Baricitinib for the treatment of Covid-19. This study conveyed that the use of Baricitinib has the potential to reduce mortality rates in Covid-19 patients.

#### **XI-B: ID/HIV-2**

##### **PL XI-8**

##### **MANAGEMENT OF COAGULASE-NEGATIVE STAPHYLOCOCCUS POSITIVE BLOOD CULTURES ACROSS A HEALTH SYSTEM**

Alyssa Anderson, Christy Su, Ashley Long, Amy Schilling, Audrey Wanger, Memorial Hermann Greater Heights, Houston, TX.

**PURPOSE:** Coagulase-negative Staphylococcus (CoNS) is frequently introduced into blood culture specimens and contributes to high contamination rates. Utilizing clinical criteria associated with true CoNS bacteremia can help to rule out contamination and reduce rates of inappropriate antibiotic use. The purpose of this review was to determine the incidence of patients overtreated for CoNS positive blood

cultures determined to be a contaminant, utilizing a developed clinical algorithm.

**METHODS:** This was a multicenter, retrospective chart review from October 2021 to December 2021 across six acute care community hospitals. Adult patients with a positive blood culture for CoNS were included in the review. Exclusion criteria included polymicrobial bacteremia, isolation of *S. lugdunensis* from blood culture, and receiving antibiotics active against CoNS for unrelated concomitant infection. The primary outcome was to determine the incidence of patients overtreated for CoNS positive blood cultures determined to be a contaminant. Secondary outcomes were to evaluate the subgroup of patients who received overtreatment for CoNS blood culture contamination and to determine the number of patients appropriately managed.

**RESULTS:** In progress

**CONCLUSION:** In progress

**PL XI-9  
ASSESSMENT OF VANCOMYCIN  
ADMINISTRATION TIME FOR TOTAL HIP  
AND KNEE SURGICAL PROPHYLAXIS.**

Evelin Vaquiz, Ardath Plauche, Memorial Hermann Katy Hospital, Katy, TX

**PURPOSE:** To compare the current practice within a community hospital to recommendations by the American Society of Health-System Pharmacists (ASHP) relating to vancomycin administration time prior to tourniquet inflation or first incision in patients having undergone a total knee or hip arthroplasty.

**METHODS:** Using data retrospectively collected from a community hospital's electronic records, adult patients who underwent a total hip or knee arthroplasty and received vancomycin for pre-surgical prophylaxis between July 2020 and July 2021 were evaluated. Vancomycin orders were assessed for timing, dose infused prior to incision or tourniquet inflation, and ordered dose. Beta lactam allergy status was also evaluated to determine compliance with local surgical prophylaxis recommendations.

**RESULTS:** Of 355 patients evaluated, a total of 46 met inclusion criteria and were assessed as part of the study. A total of 39 patients (85%) received vancomycin within 120 minutes and were considered adherent to ASHP recommendations. Evaluation of all

patients found the average vancomycin dose administered prior to first incision or tourniquet inflation was 1474 mg of 2000 mg total dose (n = 8), 1197 mg of 1500 mg total dose (n = 13), 892 mg of 1250 mg total dose (n = 6), 776 mg of 1000 mg total dose (n = 17), 750 mg of 750 mg total dose (n = 1), and 350 mg of 500 mg total dose (n = 1); overall, 21 patients (46%) received the full dose prior to incision or tourniquet inflation. Upon evaluation of each patient's ordered vancomycin dose and comparison to the hospital's flat weight-based dosing protocol, 10 (22%) did not have the local guideline-recommended vancomycin dose ordered; these patients were all underdosed. Despite hospital guidance recommending vancomycin use only in the setting of serious penicillin or cephalosporin allergy, 9 (20%) of 46 patients received vancomycin without documented beta-lactam allergy. After assessing beta-lactam allergies using a risk assessment tool, 17 patients (47%) were considered low risk and could have potentially received a beta-lactam. Only 1 patient (2%) had a second infection-related encounter following surgery. Due to the low number of infectious-related encounters after surgery, the incidence of surgical site infection occurring within 90 days of total hip and knee arthroplasty was unable to be evaluated.

**CONCLUSION:** Overall, vancomycin administration patterns did not meet ASHP timing recommendations in 15% of total hip or knee arthroplasty cases. Furthermore, 54% of patients failed to receive prophylactic vancomycin to completion prior to incision or tourniquet time. Appropriate administration of vancomycin in terms of dose and timing provides an opportunity for improvement for optimizing patient care. Use of vancomycin in patients without a reported penicillin allergy should be further investigated to ensure patients receive the most appropriate antibiotic for surgical prophylaxis.

**PL XI-10  
OUTCOMES FOR PATIENTS RECEIVING  
CEFTRIAXONE FOR ESBL-PRODUCING  
BACTERIAL UTIS - DOES GENOTYPE  
CORRELATE WITH EFFICACY?**

Valerie Buckley, MaiCuc Tran, Stefanie Stramel, Memorial Hermann Memorial City Medical Center, Houston, Texas.

**PURPOSE:** The purpose of this study was to evaluate ceftriaxone as a treatment option in genotypic extended-spectrum  $\beta$ -lactamase-producing (ESBL) bacterial urinary tract infections (UTIs) and add to the

sparse amount of published literature. Although infecting bacteria may be genotypically resistant to third-generation cephalosporins, such as ceftriaxone, UTIs are often empirically treated with this agent before microbial susceptibilities are known. The outcomes of patients who remained on ceftriaxone therapy for multidrug-resistant UTIs has not been clearly investigated.

**METHODS:** An observational, retrospective chart review was performed on adult patients presenting to a 444-bed community hospital from January 1st, 2017 to July 1st, 2021 in Houston, Texas. Inclusion criteria consisted of patients diagnosed with UTI or pyelonephritis characterized by signs and symptoms, and those being treated with ceftriaxone for at least 3 days for genotypically drug-resistant UTIs, defined as the growth of at least 50,000 colony-forming units per mL (CFU/mL) of ESBL-producing bacterial species. Exclusion criteria consisted of patients who were empirically initiated on an antibiotic other than ceftriaxone, lacked documented signs and symptoms, or were not on ceftriaxone for at least 3 days. The primary outcome was clinical response according to resolution of presenting signs and symptoms. Key secondary outcomes were microbiologic cure, defined as follow-up urine cultures having less than 50,000 CFU/mL of ESBL uropathogen at day 3 and beyond of ceftriaxone therapy, as well as de-escalation or escalation of empiric antimicrobial agent.

**RESULTS:** A total of 20 patients were included in the study population; 17 patients achieved clinical cure at day 3 and beyond of ceftriaxone therapy (85%;  $p < 0.05$ ). Three patients had documented follow-up urine cultures, two of which had microbiological cure with no growth in either sample (67%;  $p < 0.05$ ). At day 3 of ceftriaxone therapy, despite defined clinical cure, escalation of agent occurred in 15 of 20 subjects (75%;  $p < 0.05$ ) as typical practice is to transition patients to a broad-spectrum agent if an ESBL-producing microorganism is isolated in cultures. Of those 15, regardless of resolution of symptoms, 11 patients were escalated to a carbapenem (73%) and 4 patients were transitioned to a fluoroquinolone (27%).

**CONCLUSION:** The results of this small, retrospective chart review suggest that patients treated with ceftriaxone for ESBL-producing multidrug-resistant bacterial UTIs did not experience high rates of antimicrobial failure. Treatment with ceftriaxone may be appropriate to continue in patients who show initial clinical improvement based on resolution of

presenting signs and symptoms, even after a genotypic multidrug-resistant organism is isolated.

# **PL XI-11** **CLINICAL OUTCOMES OF** **STENOTROPHOMONAS MALTOPHILIA** **PNEUMONIA IN CRITICALLY ILL PATIENTS** **ON MECHANICAL VENTILATION.**

Kristen Underbrink, Jessica Babic, Jennifer Cortes, Memorial Hermann-Texas Medical Center, Houston, TX.

**PURPOSE:** Compare treatment failure rates and clinical outcomes of patients with *Stenotrophomonas maltophilia* treated with sulfamethoxazole/trimethoprim (SMX/TMP) monotherapy or levofloxacin monotherapy.

**METHODS:** We conducted a retrospective analysis of a cohort of patients who were at least 18 years of age with a positive respiratory culture for *S. maltophilia* between January 1, 2018, to August 31, 2021. At the time of culture patients must have been on mechanical ventilation for at least 48 hours and treated with monotherapy for at least 48 hours with SMX/TMP or levofloxacin. Patients were excluded if they received less than 48 hours of monotherapy, received concomitant treatment with an additional agent with activity agents *S. maltophilia* (minocycline, ceftazidime, cefiderocol), were pregnant, received combination therapy, had a diagnosis of cystic fibrosis, or had a history of *S. maltophilia* positive culture within the previous 12 months.

**RESULTS:** A total of 105 patients were assessed for eligibility and 92 met inclusion criteria. Of these patients, 51 (49%) received SMX/TMP and 41 (39%) received levofloxacin. Treatment failure ( $p=NS$ ), 30-day microbiological cure ( $p=NS$ ), ICU length of stay ( $p=NS$ ), and hospital length of stay ( $p=NS$ ) were similar between groups. Mortality was greater in the levofloxacin group (15% vs 37%,  $p=0.017$ ) and clinical cure occurred more in the SMX/TMP group (51% vs 32%,  $p=0.042$ ).

**CONCLUSION:** In this retrospective analysis, SMX/TMP and levofloxacin had similar rates of treatment failure when treating *S. maltophilia* pneumonia in patients on mechanical ventilation. SMX/TMP was associated with more clinical cure and lower mortality than levofloxacin.

**PL XI-12**

**THE IMPACT OF AN ANTIMICROBIAL STEWARDSHIP CLINICAL PHARMACY SPECIALIST ON ANTIMICROBIAL DAYS OF THERAPY THROUGH EDUCATION DRIVEN POLICIES, PROCEDURES, AND INTERVENTIONS**

Yolanda Martinez, Susan Lam, MaiCuc Tran, Thomas Roduta, Stefanie Stramel. Memorial Hermann Memorial City Medical Center, Houston, Texas.

**PURPOSE:** The purpose of this study is to evaluate the impact on antimicrobial days of therapy per 1000 patient days due to a dedicated pharmacy clinical specialist position responsible for developing policies, procedures, and providing education in infectious diseases. Currently, there is sparse literature evaluating the downstream impact of developing and implementing pharmacy related policies and protocols versus the focus on direct interventions performed by a member of the antimicrobial stewardship team.

**METHODS:** This study is a pre and post retrospective analysis of antimicrobial days of therapy per 1000 patient days (DOT/1000PD) at a community hospital from 09/01/19-05/01/20 and 07/01/20-03/01/21. The primary outcome assessed pre and post antibiotic days of therapy found to be directly related to targeted education and implemented policies and procedures by a dedicated antimicrobial stewardship pharmacist. Pre- and post- secondary outcomes will include assessment of the number of documented interventions entered by all pharmacy members, as related to a dedicated Antimicrobial Stewardship Clinical Pharmacy Specialist implemented policies, procedures and/or education, and costs savings as documented by pharmacist entered documented interventions.

**RESULTS:** Results of analysis will be presented at TSHP 2022 Alcalde Southwest Leadership Conference.

**CONCLUSION:** Based on results, conclusion will be presented at TSHP Alcalde Conference 2022.

**PL XI-13**

**THE UTILIZATION OF EMPIRIC ANTIPSEUDOMONAL AGENTS IN DIABETIC FOOT INFECTIONS**

Anthony V. Tran, Shivani Patel, Tzuchen Jou, Memorial Hermann Southwest Hospital, Houston, TX.

**PURPOSE:** Guidelines for diabetic foot infections (DFIs) published by the Infectious Disease Society of America (IDSA) in 2012 recommend empiric antibiotics based on the severity of infection and the likely causative pathogen(s). For empiric *Pseudomonas aeruginosa* (PSE) therapy, guidelines recommend use in patients with certain risk factors, including high local prevalence of PSE infection, warm climates, or frequent exposure to water. Unnecessary broad empiric antibiotic therapy in the setting of DFIs has been associated with increasing resistance patterns, hospital length of stay, and mortality. The purpose of this study is to assess the use of empiric antipseudomonal therapy in the treatment of patients with DFIs at Memorial Hermann Southwest Hospital.

**METHODS:** This is a retrospective chart review of 150 patients aged 18 years or older that have a discharge diagnosis (ICD-10) for diabetic foot ulcer with positive microbiology results between January 1, 2020 and December 31, 2020 at Memorial Hermann Southwest Hospital in Houston, Texas. Baseline characteristics include age, gender, comorbidities, DFI severity (PEDIS grade), and PSE risk factors. The primary outcome of the study was the incidence of PSE isolated from surgical cultures. Secondary outcomes included clinical improvement and the need for antibiotic adjustment. Clinical improvement was defined as resolution or marked improvement of symptoms and signs of infection at day 4 of treatment. The need to change antibiotics was defined as an opportunity to use a narrower antibiotic based on organisms identified/susceptibilities.

**RESULTS:** The mean age of the patients was 62 years and 79% of the study population was male. DFI severity was as follows based on PEDIS grade: 1(3%), 2(9%), 3(44%), and 4(44%). For the primary outcome, the incidence of PSE isolated from surgical cultures was 6.5%. The most commonly isolated pathogens were *Staphylococcus aureus* (17.9%), *Enterococcus* spp. (13.9%), and *Streptococcus* spp. (12.5%). 10% of patients had 1 or more risk factors for PSE and 91% of patients were empirically started on an antipseudomonal agent. Clinical improvement was seen in 92% of the patients. There was a need to change antibiotics among 84% of the patients.

**CONCLUSION:** Our study demonstrated that 6.5% of patients with DFI had PSE isolated from surgical cultures. In comparison, 10% of patients had risk factors for PSE and 91% of patients were placed on

empiric anti-pseudomonal therapy. These results demonstrate that there is an overutilization of empiric antipseudomonal agents for patients with DFI at our institution. In response to the findings of this study, our institution plans to create and implement an algorithm-based approach to managing DFI with focus on assessment of pseudomonal risk factors.

## **XI-C: Emergency Med**

### **PL XI-14**

#### **EFFECT OF TIME TO BLOOD PRESSURE CORRECTION IN PATIENTS PRESENTING WITH HYPERTENSIVE EMERGENCY IN THE EMERGENCY DEPARTMENT AND INTENSIVE CARE UNITS.**

Jessica Pham, Jennifer Cortes, Melanie Madorsky, Brittany Pelsue, Memorial Hermann-Texas Medical Center, Houston, TX.

**PURPOSE:** Hypertension is the most common chronic medical condition worldwide. Among patients diagnosed with hypertension, approximately 1-2% of the patients develop hypertensive crisis, defined as systolic blood pressure (SBP) greater than 180 mmHg and/or diastolic blood pressure (DBP) greater than 120 mmHg. Left untreated, hypertensive crises may result in new or worsening end-organ damage, otherwise classified as hypertensive emergencies. Currently, AHA/ACC guidelines recommend reducing SBP by a maximum of 25% over the first hour, then to a SBP of 160 mmHg and DBP of 100-110 mmHg over the next 24-48 hours. Condition-specific blood pressure (BP) goals apply for cases such as acute aortic dissection, intracerebral hemorrhage, eclampsia, and pheochromocytoma crises. The current guideline BP reduction goals serve to prevent worsening of end-organ damage, which may occur with overly aggressive BP reduction. However, no high-quality randomized controlled trial evidence exists to suggest the optimal rate of BP reduction. The objective of this project is to evaluate the correlation of worsening end-organ damage and non-adherence to guideline-recommended BP reduction rates in adult patients presenting with hypertensive emergency in the emergency department (ED) and intensive care units (ICU) at Memorial Hermann-Texas Medical Center (MH-TMC).

**METHODS:** This is a single-center, retrospective cohort study. Eligible records for review included patients who presented with a primary diagnosis of hypertensive emergency as defined by appropriate

ICD-10 codes and who received at least one antihypertensive medication. Data was collected from January 2016 through July 2021. Baseline data was collected through retrospective chart review. Exclusion criteria included: Transfer from outside hospital; receipt of emergent hemodialysis; pregnancy; presentation with ischemic stroke, acute aortic dissection, intracerebral hemorrhage, pheochromocytoma crisis, pre-eclampsia, or eclampsia. The primary outcome was development of new or worsening end-organ damage associated with guideline-directed versus non-guideline directed correction of BP in the first hour of pharmacologic antihypertensive initiation. Secondary endpoints included: Time to mean arterial pressure correction by 25%, development of new or worsening end-organ damage associated with guideline- versus non-guideline directed correction of blood pressure in the first 6 hours of pharmacologic antihypertensive initiation, time to SBP of 160 mmHg and DBP of 100-110 mmHg, time to normalization of blood pressure, percentage of patients who achieve normal blood pressure prior to discharge, number of medications used in blood pressure correction, time to discontinuation of antihypertensive medication intravenous infusion, intensive care unit length of stay, hospital length of stay, disposition at discharge, and number of antihypertensive medications prescribed at discharge.

**RESULTS:** A total of 490 patients were screened and 267 patients met inclusion criteria. Data analysis is currently in progress.

**CONCLUSION:** Conclusions to be presented following completion of data analysis.

### **PL XI-15**

#### **FASCIA-IIIACA BLOCKS IN THE EMERGENCY DEPARTMENT**

Andrew Lang, Nick Yarbrough, Memorial Hermann the Woodlands Medical Center, Woodlands, TX.

**PURPOSE:** To compare the intravenous morphine sulfate equivalences of patients presenting to our emergency department with hip fractures that had a FIB compared to patients that did not at 48 hours of admission. We also examined the total intravenous morphine sulfate equivalences utilized in the emergency department, time to first opiate after FIB, time to surgery, local anesthetic utilized, adverse events, defense and veterans pain rating scale, numeric rating scale, and use of adjunct pain medications.

**METHODS:** A retrospective chart review was conducted in patients presenting to the Memorial Hermann The Woodlands emergency department from 06/01/2020 to 08/31/2021 with acute hip fragility fracture who underwent surgery within 24 hours. A total of 53 patients who met the criteria was analyzed. 13 patients who received a FIB were compared to 40 patients that did not receive a FIB. Patients who were not appropriate for FIB and did not undergo surgery were excluded. Data was extracted from Care4 electronic medical records, including admission records, procedures, inpatient analgesic medications, and physical assessment.

**RESULTS:** The FIB group did not show a significantly lower usage of morphine sulfate equivalences at 48 hours of admission ( $P=0.877$ ) and during emergency department stay ( $P=0.854$ ). There were no significant differences in emergency department length of stay ( $P=0.702$ ) or hospital length of stay ( $P=0.269$ ). The mean time to first opiate after FIB was 5.4 hours with no procedural complications. Baseline characteristics of weight ( $p=0.010$ ) and genders ( $P=0.015$ ) were different between groups.

**CONCLUSION:** FIB in hip fracture patients can provide advantages such as delaying opiate consumption; however, our study did not find significant differences in opiate consumption at 48 hours of admission and length of stay. While our study was limited with our patient population, local anesthetics used, and time to FIB procedure, further studies should evaluate FIB's role in the emergency department as an analgesic tool in hip fracture patients.

#### **PL XI-16 EVALUATION OF BLOOD PRESSURE MANAGEMENT IN THE EMERGENCY DEPARTMENT FOR HYPERTENSIVE EMERGENCIES AND ASSOCIATED CLINICAL OUTCOMES.**

Brent Tucker, Meghna Vallabh, Lucretia Davis,  
Baylor St. Luke's Medical Center, Houston, TX.

**PURPOSE:** Evaluate the clinical outcomes of hypertensive emergency in the emergency department based on the degree of immediate blood pressure reduction with antihypertensive agents and gain insight into the risks associated with lowering blood pressure too rapidly.

**METHODS:** This is a retrospective study of hypertensive emergency patients in the emergency

department from August 2020 to August 2021 at a single center, large, quaternary academic hospital. Patients were divided into two groups, conservative blood pressure reduction and aggressive blood pressure reduction, based on indication and the degree of blood pressure reduction within the first two hours in the emergency department. The primary endpoint for this study was in-hospital mortality. Secondary endpoints included hospital length of stay, degree and timeline of blood pressure reduction, vital signs, incidence of acute kidney injury, and hospital or emergency department readmission.

**RESULTS:** A total of 100 patients were included in this study. Sixty-six patients were classified as conservative blood pressure reduction, and thirty-four patients were classified as aggressive blood pressure reduction. In the conservative group, the most common indications were acute decompensated heart failure (42%), unclassified hypertensive emergency (27%), and ischemic stroke (14%). In the aggressive group, the most common indications were unclassified hypertensive emergency (29%), ischemic stroke (24%), intracranial hemorrhage (24%), and acute decompensated heart failure (21%). In the conservative group, the most common antihypertensive agents were intravenous hydralazine (48%), oral hydralazine (36%), and intravenous labetalol (26%). In the aggressive group, the most common antihypertensive agents were intravenous nicardipine (53%), intravenous hydralazine (32%), and intravenous nitroglycerin (32%). For the primary endpoint of in-hospital mortality, there was no difference between the conservative group and aggressive group (2% vs 3%,  $p=1.000$ ). There was no statistically significant difference in the conservative and aggressive groups for emergency room visits within 30 days (32% vs 18%,  $p=0.16$ ) or hospital readmission within 30 days (26% vs 12%,  $p=0.13$ ). There was no difference in the occurrence of new acute kidney injury in the conservative or aggressive group (14% vs 12%,  $p=1.000$ ).

**CONCLUSION:** There was no statistically significant difference in emergency room visits within 30 days, hospital readmission within 30 days, in-hospital mortality, hospital length of stay, or new acute kidney injury among the conservative and aggressive blood pressure reductions groups. Intravenous nicardipine most commonly resulted in aggressive blood pressure reduction. Larger studies are needed to determine the optimal rate and timeframe of blood

pressure reduction in the emergency department for patients with hypertensive emergency.

**PL XI-17  
INCIDENCE OF MEDICATION  
RECONCILIATION ERRORS IN PATIENTS  
ADMITTED THROUGH THE EMERGENCY  
DEPARTMENT**

Ashley Sidebottom

**PL XI-18  
EVALUATION OF DISCHARGE  
PRESCRIPTION ERRORS AT A LARGE  
URBAN EMERGENCY DEPARTMENT**

Katherine Muilenburg, Kristi Carter, Michael Olmos, Tanna Nelson, Texas Tech University Health Sciences Center School of Pharmacy, Texas Health Harris Methodist Hospital Fort Worth, Texas

**PURPOSE:** Prevention of discharge prescription errors represents an area for pharmacy intervention to ensure best practices are being followed. Previous studies indicate the most common classes of medications attributed to an error include antimicrobials, steroids, and inhaled medications. The purpose of this study is to investigate if there are medication prescription errors after discharge from the emergency department (ED), determine the clinical severity of the errors, and assess where pharmacy can most impactfully provide education and interventions.

**METHODS:** In this retrospective, cross-sectional review of discharge prescriptions from the Texas Health Harris Methodist Fort Worth (THFW) ED, we assessed the clinical appropriateness of a random selection of prescriptions. Specifically, inhalants for Chronic Obstructive Pulmonary Disease (COPD) and asthma exacerbations, antimicrobials, and anticoagulants were evaluated. Each prescription was assessed for accuracy including indication, duration of therapy, allergies, and dose. The primary outcome is prevalence of moderate, serious, or potentially lethal medication errors among adult patients discharged from the THFW ED with > 1 prescription during the month of July 2021. Secondary outcomes include clinical severity of errors as defined by a modified scale originally developed by Castillo, et al. The categories included optimal, area for potential optimization, moderate error, serious error, and potentially lethal error.

**RESULTS:** Out of 8,876 prescriptions from July 2021 there were 210 inhalant orders, 1,311 antimicrobials,

and 16 anticoagulants; of those, 50 orders were randomly selected from each group to review for appropriateness. As there were only 16 anticoagulants for July 2021, we expanded to include March through July 2021 to provide a large enough sample to randomize. There were no potentially lethal errors in any group. The only group to have a serious error was anticoagulants prescribed for Atrial Fibrillation (AF), of which 56% had a serious error of VTE initial dosing. A moderate error occurred in 15/35 (43%) of antimicrobials, 11/25 (52%) of inhalants, and 1/40 (3%) of anticoagulants.

**CONCLUSION:** While our results are descriptive and cannot be determined to be statistically significant, there is an obvious area of intervention for pharmacists in the ED here at THFW. In all three categories there was at a minimum minor areas in which pharmacists could assist in optimization of therapies. The most clinically important intervention is needed for anticoagulants prescribed for AF. Additionally, optimization of the duration of antimicrobial therapy and choice of agent for respective infections is a large potential area of pharmacist intervention.

**PL XI-19  
TIME TO POST-INTUBATION SEDATION IN  
ADULT PATIENTS UNDERGOING RAPID  
SEQUENCE INTUBATION FOR MEDICAL  
INDICATIONS IN THE EMERGENCY  
DEPARTMENT BASED ON PARALYTIC TYPE**

Christine Lawson, Parth Parikh, Christina Metrejean, Dylan LeBlanc, Brian Allen, Our Lady of the Lake Regional Medical Center, Baton Rouge, LA

**PURPOSE:** Rapid sequence intubation (RSI) involves administering an induction agent and paralytic in rapid succession for emergent airway management. Timely addition of post-intubation analgesedation is imperative to prevent possible psychological trauma from awareness with paralysis, which has a reported 2.6% prevalence in the emergency department (ED). Studies report longer time to post-intubation sedation in those who received rocuronium versus succinylcholine for combined traumatic and non-traumatic RSI indications in the ED. This study aims to compare time to post-intubation analgesedation for non-traumatic RSI indications in the ED between patients receiving rocuronium or succinylcholine. Additionally, we evaluated if the presence of an ED pharmacist improves this time to analgesedation.

**METHODS:** This study is an IRB-approved, single-center, retrospective chart review conducted at a 900-bed level II trauma center with an 83-bed emergency department from October 1, 2018 to March 1, 2020. Adults aged 18 years and older undergoing RSI in the ED with an induction agent and either rocuronium or succinylcholine as a paralytic were included. Trauma patients, pregnant patients, patients with a difficult airway, and those intubated for indications of status epilepticus, stroke, or traumatic brain injury were excluded. Additionally, patients were excluded if they did not receive an induction agent, a paralytic agent, or post-intubation analgesedation, and for incomplete medical records. Consecutive patients meeting inclusion criteria were enrolled into two groups: one group in the absence of a pharmacist and a second group in the presence of a pharmacist. The primary outcome assesses the median time to post-intubation analgesedation in rocuronium versus succinylcholine paralytic groups using a Mann-Whitney U test. Secondary outcomes include time to post-intubation analgesedation when a pharmacist is present versus absent and the proportion of patients receiving post-intubation analgesedation within 10 minutes or greater than 10 minutes post-induction in each paralytic group.

**RESULTS:** Analysis in process. Final data to be presented.

**CONCLUSION:** Analysis in process. Final conclusion to be presented.

## PL XI-20

### EFFICACY AND SAFETY OF BOLUS INSULIN ADMINISTRATION FOLLOWED BY CONTINUOUS INTRAVENOUS REGULAR INSULIN INFUSION ON THE MANAGEMENT OF DIABETIC KETOACIDOSIS IN ADULT PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT

Caren Mose, Kevin Welch, Laura A. Sample, CHRISTUS Spohn Hospital – Shoreline, Corpus Christi, TX.

**PURPOSE:** To evaluate the efficacy and safety of no bolus vs bolus regular insulin in the management of Diabetic Ketoacidosis (DKA).

**METHODS:** A retrospective chart review was conducted of adult patients aged  $\geq 18$  - 89 years old; admitted between Jan 2019 and Jan 2021 with a diagnosis of DKA and, treated with regular insulin per

the institution DKA treatment order set. Patients were assigned to the bolus or no bolus group based on provider preference. The bolus group received regular insulin bolus followed by continuous intravenous (IV) infusion (0.1 unit/kilogram (kg)/hour (h) bolus, followed by 0.1 unit/kg/h IV infusion), while the no bolus group received continuous IV infusion alone (0.14 unit/kg/h). The primary outcome investigated was the time (in hours) to ketoacidosis resolution (defined as serum anion gap [AG]  $\leq 12$  mEq/L for 2 consecutive lab results, measured at least 4 hours apart). Also, secondary outcomes evaluated included the units of insulin administered to acidosis resolution, the time (in hours) to blood glucose control (defined by serum blood glucose [BG]  $\leq 200$  mg/dL, measured from time of first dose of insulin administration), bicarbonate control (defined by serum bicarbonate  $\geq 15$  mEq/L), and pH control (defined by venous pH  $\geq 7.3$ ). Other outcomes evaluated were the length of stay (LoS in days) in hospital and treatment related adverse events - incidence rate (%) of hypoglycemia (defined by serum BG  $< 70$  mg/dL) and hypokalemia (defined by potassium (K)  $\leq 3.3$  mEq). To identify a clinically significant primary outcome, approximately 200 patients would provide an effect size of  $\geq 0.5$  considered “medium” according to Cohen’s index and based on a standard deviation (SD) of 1, with a two-sided alpha of 0.05 and a power of 0.8. For secondary outcomes analysis, a p value of  $\leq 0.5$  would indicate a significant difference between the two groups.

**RESULTS:** Of 171 charts reviewed, 86 patients received no bolus and were designated the treatment group, the remaining 85 formed the control group. Groups were similar at baseline. There was no statistically significant difference in the time to resolution of DKA between the no bolus group vs. bolus group [26.7h (95%CI: 26.53, 26.95) vs. 24.93h (95%CI: 24.71, 25.14), respectively,  $p = 0.62$ ] with an effect size = 0.08, indicating no difference between the groups. Also, there was no difference in total insulin received to DKA resolution (1.40 vs. 1.36 units/kg,  $p = 0.77$ ) nor the time to BG control (8 vs. 9 h;  $p = 0.19$ ), or bicarbonate control (15 vs. 16 h;  $p = 0.47$ ). The time to pH control was faster in the no bolus group (12.4 vs. 18.3 h;  $p = 0.02$ ) but the difference was negligible based on an effect size of -0.5. The incidence of hypoglycemia and hypokalemia did not differ between the groups (14 vs. 8%,  $p = 0.99$ ) and (37 vs. 42%,  $p = 0.99$ ), respectively, and the length of hospital stay was similar (3.2 vs. 2.7 days,  $p = 0.27$ ).

**CONCLUSION:** Administration of an initial bolus dose of insulin was not associated with faster time to resolution of DKA and demonstrated equivalent changes in clinically relevant end-points when compared to patients not administered the bolus.

## **XII-A: Internal Med/Pharmacotherapy**

### **PL XII-1**

#### **ATTAINMENT OF THERAPEUTIC ANTI-FACTOR Xa LEVELS IN OBESE PATIENTS ON HEPARIN INFUSIONS FOR VENOUS THROMBOEMBOLISM**

Sheena Chokshi, Tamara Knight, Evan Peterson, Ascension Seton, Austin, TX.

**PURPOSE:** Heparin displays altered pharmacokinetics in obesity. Delays in achieving therapeutic levels increases risks of venous thromboembolism (VTE). Studies show weight-based heparin dosing is superior, but this may lead to excess dosing in obesity. Obese patients have a higher risk for VTE recurrence; thrombotic and bleeding risk need to be balanced and a dose cap is one simple strategy to achieve this. Given the lack of robust literature in heparin dosing in obesity, the purpose of this study is to compare the attainment of a therapeutic anti-factor Xa level within 24 hours in patients receiving heparin at capped versus uncapped weight-based doses for VTE.

**METHODS:** This retrospective, cohort study evaluated adult patients who received heparin for at least 24 hours at six Ascension Seton hospitals between June 2014 and October 2021. Patients with significant deviations from the heparin dosing protocol, interruptions in heparin therapy within the first 48 hours of initiation or prior use of an anti-Xa inhibitor or therapeutic parenteral anticoagulant were excluded from this study. Identified patients were separated into two groups: capped (greater than or equal to 128 kg) and uncapped (less than 128 kg). The primary outcome was attainment of a therapeutic anti-factor Xa level within 24 hours of initiation of heparin. Key secondary outcomes include the first anti-factor Xa level, time to the first therapeutic anti-factor Xa level and heparin infusion rate when first therapeutic anti-factor Xa level was obtained. Outcomes were analyzed in pre-specified BMI subgroups. Assuming a rate of 90% attainment of therapeutic anti-factor Xa level in the uncapped group, a sample size of 146

patients is needed to provide 80% power to detect a 20% difference with a two-sided significance of 0.05 between groups for the primary outcome.

**RESULTS:** A total of 149 patients were included, 71 in the capped group and 74 in the uncapped group. The primary endpoint was reached in 74.6% of patients in the capped group and 67.1% of patients in the uncapped group ( $p=0.315$ ). The first anti-factor Xa level was  $0.98 \pm 0.73$  in the capped group compared to  $0.92 \pm 0.57$  in the uncapped group. The first anti-factor Xa level was supratherapeutic in 67.6% of patients in the capped group and in 56.8% of patients in the uncapped group. Patients in the uncapped group first reached therapeutic anticoagulation at 18.1 hours and at a rate of 14.1 units/kg of actual body weight. Patients in the capped group first reached therapeutic anticoagulation at 18.9 hours and at a rate of 12.2 units/kg of actual body weight.

**CONCLUSION:** In patients on heparin infusions, no significant difference was found between capped and uncapped weight-based dosing with respect to the attainment of therapeutic anticoagulation at 24 hours.

### **PL XII-2**

#### **INTRAVENOUS OR ORAL ACETAZOLAMIDE FOR TREATMENT OF DIURETIC INDUCED ALKALOSIS IN PATIENTS WITH HEART FAILURE**

Janci Addison, Evan Peterson, Lyndsi Meyenburg, Dell Seton Medical Center at The University of Texas at Austin, Austin, TX.

**PURPOSE:** Loop diuretics are used in heart failure to decrease extracellular fluid volume. Extracellular fluid contraction with no bicarbonate absorption and increased chloride excretion can lead to diuretic induced metabolic alkalosis. Normal saline is the preferred treatment in chloride responsive metabolic alkalosis, however administering fluids is harmful in heart failure. Acetazolamide has been used for metabolic alkalosis, but the preferred dose, route, and frequency of administration remains unknown. The purpose of this study is to characterize dosing strategies and determine effectiveness of intravenous (IV) and oral (PO) acetazolamide for heart failure patients with diuretic induced metabolic alkalosis.

**METHODS:** This study is a multicenter, retrospective cohort study comparing the use of IV versus PO acetazolamide for the treatment of diuretic induced alkalosis between 09/30/2016 to 09/30/2021. Adult

patients will be identified by acetazolamide use and will be included if they have a diagnosis of heart failure with metabolic alkalosis (serum bicarbonate (CO<sub>2</sub>) > 32 mEq/L) and were receiving at least 120 mg of furosemide equivalents at the time of acetazolamide administration. Patients will be excluded if they have a baseline CO<sub>2</sub> of > 30 meq/L, a change in IV diuretic dose within 24 hours of acetazolamide initiation, or thiazide use during acetazolamide administration. The primary outcome is the change in CO<sub>2</sub> on the first basic metabolic panel within 24 hours of the first dose of acetazolamide.

Secondary outcomes include laboratory outcomes, such as change in bicarbonate, chloride, and pH over various time periods, and incidence of hyponatremia and hypokalemia. In addition, clinical outcomes, such as days to acetazolamide discontinuation (DC), days to IV diuretic DC, and days to hospital discharge will be analyzed. A multiple regression analysis will be conducted to determine if acetazolamide and furosemide dosing or frequency affect the primary outcome.

**RESULTS:** Results pending.

**CONCLUSION:** Results pending.

### PL XII-3

#### EFFECTIVENESS OF A MULTIMODAL PAIN PROTOCOL IN REDUCTION OF OPIOIDS REQUIREMENTS IN CARDIOTHORACIC SURGERY PATIENTS UNDERGOING CORONARY ARTERY BYPASS GRAFTING (CABG)

Amber L. Williams, Molly Curran , Emily Ong, Peter Nguyen, Sarah Piccirro

**PURPOSE:** Coronary artery bypass grafting (CABG) is a highly invasive procedure and is associated with high levels of postoperative pain. Historically, the treatment for cardiothoracic surgery pain depends on the use of opioid medications. In addition to other concerns, opioids are associated with adverse effects, including respiratory depression, nausea, vomiting, and ileus. In 2017 the CDC reported that opioid-related deaths accounted for 67.8% of all drug overdoses. The causes for the opioid crisis are multifactorial, but it is known that surgery is a risk factor for new persistent opioid use. Because of the high amount of postoperative pain, postoperative opioids given inpatient, and opioids prescribed at discharge, CABG patients are considered a vulnerable

population. Given these considerations, the Enhanced Recovery after Surgery (ERAS) 2019 guidelines recommend utilizing multimodal pain management protocols to minimize opioid use despite minimal evidence for these patients. The purpose of this study is to determine the effectiveness of a multi-modal pain protocol on opioid requirements in post-CABG patients.

**METHODS:** This multi-center, retrospective study was conducted in a random sample of hospitalized

patients over 18 years of age who underwent a CABG procedure between September 1, 2014, to September 1, 2020. Patients were excluded if they are identified as a chronic opioid user, had a history of opioid abuse or misuse, or had an allergy to opioids. The primary outcome is to compare the median oral morphine milligram equivalent (MME) requirements in CABG patients at 48 hours postoperatively after the implementation of a standardized multi-modal pain protocol to a baseline group treated prior to standardized multimodal pain orders. The secondary efficacy outcomes include ICU length of stay (LOS), hospital LOS, median pain scores postoperatively, change in non-opioid pain agent utilization, and median morphine milligram equivalents (MME) of opioids prescribed at hospital discharge. The secondary safety outcomes include need for naloxone as a reversal agent, incidence of postoperative antiemetic use, and occurrence of postoperative ileus. Additionally, a subgroup analysis was performed to assess differences between patients based on age, renal function, and procedure urgency (elective versus emergent). With a two-sided type I error of 0.05 and power of 80% to identify a 25% decrease in MME utilization between the 2 groups, a sample size of at least 126 patients will be needed.

**RESULTS:** Data collection and analysis in progress

**CONCLUSION:** Pending conclusions of results

### PL XII-4

#### PHARMACIST IMPACT ON CONCORDANCE WITH GUIDELINE DIRECTED MEDICAL THERAPY FOR CARDIAC PATIENTS

Meaghen Wiley, Jamie McCarrell, Ronald Hall, Maegan Whitworth, Neely Hudson, Karli Ammons, Rodney Kumi, BSA Health System and TTUHSC School of Pharmacy, Amarillo, TX

**PURPOSE:** While studies have shown that guideline directed medical therapy (GDMT) reduces morbidity and mortality in patients undergoing coronary revascularization or receiving an implantable cardioverter-defibrillator, real-world compliance remains low, and many patients are not prescribed GDMT at discharge. Additionally, pharmacists involved in interdisciplinary care teams and transitions of care can improve guideline concordance and patient outcomes including length of stay and readmission rates. The purpose of this study is to evaluate the impact of pharmacist intervention to improve GDMT prescribing rates for patients presenting with cardiac conditions.

**METHODS:** This is a retrospective cohort study of 200 adult patients admitted for a percutaneous coronary intervention, coronary artery bypass graft, or implantable cardioverter-defibrillator procedure. Patients were identified through ICD-10 codes and manual review. Patient demographics, cardiac procedure, medications at discharge, and other variables were collected through manual review of medical records for the patient's first admission or the admission in which the procedure occurred. A multivariable logistic regression model was used to assess concordance with GDMT at discharge.

**RESULTS:** Data collection and analysis currently in progress.

**CONCLUSION:** The results of this study will be presented following data collection and analysis.

#### **PL XII-5 EVALUATION OF PROTHROMBIN COMPLEX CONCENTRATE (PCC) USE AND ASSOCIATED OUTCOMES IN CARDIOVASCULAR SURGERY PATIENTS.**

Mackenzie Warner, Ellen Yin, Mariam Mousavi,  
Baylor St. Luke's Medical Center, Houston TX.

**PURPOSE:** The purpose of this project is to compare bleeding and thrombotic outcomes in the cardiac surgery population in patients that have received 4-factor prothrombin complex concentrate (PCC) and those who have not.

**METHODS:** This is a retrospective, observational study of major cardiovascular surgery patients to evaluate the use of four-factor PCC, KCentra, from January 2020 to July 2021 at a single center, large, quaternary academic hospital. The primary endpoint

for the study was a composite of major bleeding within 48 hours, thrombosis within 72 hours of cardiovascular surgery, and all cause mortality at 30 days. Secondary endpoints included the individual components of the primary endpoint, in addition to blood product utilization, length of stay in ICU and hospital, acute kidney injury (AKI) within 7 days, need for renal replacement therapy (RRT) within 7 days, INR prior to PCC administration, and time to extubation.

**RESULTS:** A total of 100 patients were included in the study. Forty-eight patients received PCC intra-operatively, while 52 patients did not. Significantly more patients in the PCC group had a history of previous CV surgery (29%) compared to <1% of patients in the non-PCC group. The primary composite outcome of bleeding, thrombosis, and 30 day mortality occurred in 20 patients in PCC group, and 11 patients in non-PCC group ( $p=0.03$ ). There were 17 instances of major bleeding in the PCC group compared to 11 instances in the non-PCC group ( $p=0.13$ ). Two instances of thrombosis occurred in PCC group compared to none in the non-PCC group ( $p=0.23$ ). There were a total of three deaths in the PCC group, and none in non-PCC group ( $p=0.107$ ). Cardiopulmonary bypass time (CPB) was longer in the PCC group, with a mean of 147 minutes, compared to a mean of 112 minutes in the non-PCC group. There was a higher overall requirement of intraoperative blood products in the PCC group compared to the non-PCC group (FFP: 2.33U vs 0.78U, platelets: 2.45U vs 1.06U, PRBC: 2.61U vs 1.11U, cryoprecipitate 1.71U vs 0.12U, respectively), but similar rates of intraoperative hemostatic agents use (aminocaproic acid: 65% vs 60%, tranexamic acid: 33% vs 35%, desmopressin: 19% vs 15%, respectively). Similar rates of AKI (50% vs 39%) and RRT (29% vs 23%) were noted in the PCC group and non-PCC group, respectively.

**CONCLUSION:** There was a statistically significant difference in the rates of the composite outcome of bleeding, thrombosis, and 30-day mortality in the PCC group compared to the non-PCC group (42% vs 21%, respectively). The individual components of the composite outcome did not have statistical significance, but did occur more frequently in patients that received PCC compared to those who did not.

#### **PL XII-6 PERIOPERATIVE ANTICOAGULATION BRIDGING TRENDS BASED ON**

## **CHARACTERISTICS OF PATIENTS WITH ATRIAL FIBRILLATION.**

Alexis Alba, Charlotte Farris, Richard Wong, Yalin Deng, Baylor Scott and White Medical Center – Temple, Temple, TX.

**PURPOSE:** At least sixty-five percent of patients with atrial fibrillation are prescribed anticoagulation for the prevention of thromboembolism. According to the BRIDGE trial, one in six patients on warfarin require perioperative care annually, potentially necessitating an interruption of therapy. Guidance for the decision to bridge with a parenteral anticoagulant is unclear and relies on individual prescribers to weigh the risks vs benefits of bridging. This study describes patient characteristics that can be used to predict populations with atrial fibrillation which are more likely to receive and possibly benefit from bridging therapy.

**METHODS:** A single-center retrospective chart review was conducted of hospital admissions over a five-year period at a large teaching hospital. Patients with a prior diagnosis of atrial fibrillation prescribed therapeutic anticoagulation confirmed by an outpatient prescription, and admitted to the operating room were included. Patients requiring anticoagulation for a different indication, admitted for a bleeding event, diagnosed with a stroke, venous thromboembolism, or pulmonary embolism in the past three months were excluded. The primary outcomes described are patient characteristics needed for the calculation of the CHA2DS2-VASc and HAS-BLED score, renal function, body mass index, malignancy if applicable, and blood pressure and hemoglobin before the procedure. Secondary outcomes described are the type of procedure, bleeding risk of the procedure, and thirty-day readmission rates for thrombosis and bleeding events. Patients bridged with a heparin product were matched to patients who are not bridged but admitted for a similar bleeding risk procedure and had a similar CHA2DS2-VASc score.

**RESULTS:** A total of 116 patients were analyzed. Sixty-one patients were included in the heparin group and fifty-eight in the non-heparin group after chart review. Half (50.8%) of the patients that met inclusion criteria in the heparin group and were matched to a patient that did not receive a heparin product perioperatively had a low CHA2DS2-VASc score of one to four. Approximately two-thirds of the population (67%) underwent high-risk bleeding procedures. There were more patients in the heparin

group with diabetes mellitus (49.1% vs 37.9%), and renal dysfunction (49.2% vs 24.1%). No patients in the heparin group had a 30-day readmission event for bleeding or thrombosis. Two patients with a moderate CHA2DS2-VASc score in the non-heparin group had readmissions within 30 days for a thrombotic event.

**CONCLUSION:** A higher percentage of patients in the heparin group compared to the non-heparin group had renal dysfunction and a diagnosis of diabetes mellitus at our institution. Further research is needed to assess possible correlations between patient characteristics and bleeding or thrombosis outcomes from bridging therapy.

## **PL XII-7 RETROSPECTIVE COMPARISON OF APIXABAN VS. RIVAROXABAN VS. WARFARIN IN PATIENTS WITH ADVANCED CHRONIC KIDNEY DISEASE (CKD) WITH ATRIAL FIBRILLATION OR VENOUS THROMBOEMBOLISM**

Priyanka Kochuparambil

**BACKGROUND:** Patients with venous thromboembolism (VTE) and nonvalvular atrial fibrillation (NVAf) who require anticoagulant therapy have traditionally been started on the standard of care, warfarin. However, in the last decade, direct oral anticoagulants (DOACs) have challenged warfarin's role as the standard of care. Randomized controlled trials have shown DOACs to be as efficacious as compared to warfarin with similar or in some cases lower rates of bleeding. In addition to the efficacy and safety benefits, additional advantages include fixed dosing, fewer drug-drug and drug-food interactions, and less stringent monitoring requirements. Despite these advantages, there are some limitations to the use in specific patient populations such as patients with advanced chronic kidney disease (CKD) due to exclusion from the landmark studies.

**OBJECTIVE:** The purpose of this study is to evaluate the safety and efficacy of apixaban vs. rivaroxaban vs. warfarin in patients with stage 4 and 5 CKD including those on hemodialysis.

**METHODS:** A retrospective chart review was conducted. The primary outcome was major bleeding and time to bleed. Secondary outcomes included clinically relevant nonmajor bleeding, minor bleeding, and ischemic stroke or recurrent venous thromboembolism. Patients were included if they had

stage 4 or 5 chronic kidney disease (including those on dialysis) who were newly initiated on apixaban, rivaroxaban or warfarin for NVAf or VTE. Subjects were patients at Baylor Scott and White Hospital Temple, Texas from January 1, 2015, to June 30, 2021. Patients were excluded if they received continuous renal replacement therapy, had a mechanical or bioprosthetic heart valve or if they were pregnant.

**RESULTS:** A total of 180 patients were identified and through the exclusion and inclusion criteria, 51 patients were included in the analysis. The incidence of a bleeding event was 25.49% versus 1.96% for a coagulation event. The average time to bleed was 96.75 days in the apixaban 2.5 mg BID group, 208.5 days in the apixaban 5 mg BID group, 51.5 days in the rivaroxaban group, and 68.66 days in the warfarin group.

**CONCLUSION:** From this study, there was a higher incidence of bleeding events in both apixaban dosage groups. However, patients experienced a later time to bleed than the other anticoagulant agents. In addition, more information is needed to determine whether the apixaban group was at a baseline increased risk for bleed. Although data is conflicting, this study brings insight that DOACs may offer certain advantages for anticoagulation in the advanced CKD population. Future research should focus on matched cohorts of patients based on bleeding risk to evaluate safety and efficacy of anticoagulation in this population.

## **XII-B: Internal Med/Pharmacotherapy**

### **PL XII-8**

**CORRELATION OF POPULATION SPECIFIC RISK FACTORS AND PREVALENCE OF DEVELOPING SEVERE HYPOGLYCEMIA AT A LARGE MEDICAL CENTER AND IMPACT OF PHARMACIST INTERVENTIONS ON INPATIENT HYPOGLYCEMIC INCIDENCE USING A REAL-TIME RISK-ASSESSMENT ALERT SYSTEM.**

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**PURPOSE:** To determine the risk factors for developing severe inpatient hypoglycemia in patients at Covenant Medical Center. Additionally, assess the impact on rates of severe hypoglycemia after

implementing a pharmacist-led insulin surveillance program using real-time alert system.

**METHODS:** Retrospective data collection from at-risk patient medical records admitted from January 2021 through March 2021. Logistic regression performed to identify most common characteristics related to developing severe inpatient hypoglycemia.

**RESULTS & CONCLUSION:** Yet to be determined.

### **PL XII-9**

**RATE OF FASTING HYPOGLYCEMIA IN NONCRITICALLY ILL HOSPITALIZED ADULTS RECEIVING SLIDING-SCALE INSULIN WITH BEDTIME DOSE HALVED OR OMITTED COMPARED TO FULL DOSE**

Abbey Bonyata, Karlye Trevino, Kevin Welch, CHRISTUS Spohn Shoreline, Corpus Christi, TX

**PURPOSE:** Because fasting hypoglycemia represents a significant patient safety concern, we aim to determine whether sliding-scale insulin (SSI) regimens with reduced bedtime dosing are associated with fewer fasting hypoglycemic events. In this study, we compare the rate of fasting hypoglycemia in patients receiving SSI with bedtime doses halved (AC1/2HS) or omitted (TIDAC) compared to full bedtime SSI dosing (ACHS).

**METHODS:** A retrospective chart review was conducted of noncritically ill adult patients receiving SSI for at least 24 hours at CHRISTUS Spohn Shoreline Hospital between January 1, 2015 and September 30, 2021. For each SSI patient-day, data including the SSI regimen (ACHS, AC1/2HS, or TIDAC), SSI intensity, and point-of-care (POC) glucose level on the subsequent morning was collected. A fasting hypoglycemic event was defined as a morning POC glucose level of less than 70 mg/dL, and a fasting hyperglycemic event was defined as a morning POC glucose level of greater than 180 mg/dL. The primary outcome was the rate of fasting hypoglycemia per SSI patient-day, and the key secondary outcome was the rate of fasting hyperglycemia per SSI patient-day.

**RESULTS:** A total of 759 SSI patient-days (399 full bedtime dose, 360 reduced bedtime dose) were analyzed, consisting of 99 unique patients. Overall, 26 fasting hypoglycemic events occurred; 19 events in the full-dose group and 7 events in the reduced bedtime dose group. Compared to full-dose, the reduced

bedtime dosing group had a significantly lower rate of fasting hypoglycemia per patient-day (1.94% vs 4.76%,  $p=0.044$ ) and a significantly higher rate of fasting hyperglycemia per patient-day (28.89% vs 17.54%,  $p=0.0002$ ).

**CONCLUSION:** While SSI regimens with reduced bedtime dosing were associated with a significantly lower rate of fasting hypoglycemia compared with full bedtime dosing, they were also associated with a significantly higher rate of fasting hyperglycemia. The decision to reduce or omit bedtime SSI dosing should be made on a case-by-case basis.

#### PL XII-10

##### EVALUATE THE EFFECTIVENESS OF SACUBITRIL/VALSARTAN (ENTRESTO®) IN HEART FAILURE RELATED READMISSION IN A SOUTH TEXAS HOSPITAL

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**PURPOSE:** Entresto® is a combination of neprilysin inhibitor (sacubitril) and an angiotensin receptor blocker (valsartan) that is recommended for patients with heart failure. In both PARADIGM-HF and PIONEER-HF study, Entresto® proved to decrease cardiovascular risk and reduce hospitalization related to heart failure when compared to an ACEi. Further analysis PARADIGM-HF participants showed decrease in 30-day readmission rates in patients taking Entresto compared to enalapril.

Rates of heart failure are disproportionately higher in minority groups such as Hispanics and African Americans compared to non-Hispanic whites. Despite the findings of these trials, Hispanics are often underrepresented in major studies. The purpose of this study is to evaluate the readmission rates for patients taking ARNI compared to ACEi/ARB in a South Texas institution, which is primary comprised of Hispanic patient population.

**METHODS:** A single center, retrospective chart review will be conducted on adult patients ( $\geq 18$  years old) with hospitalization related to heart failure from July 2017 – July 2021. The patients will be evaluated further to determine if they had a readmission within 30 days from the previous hospitalization visit. The data collected from the electronic medical records (EMR) will include patients' demographic information, date of admission and discharge, primary diagnosis, comorbidities, pertinent labs, and heart

failure medications (name, dose, route, etc.). This information will be collected for admission and discharge for all visits, including primary admission and readmission. The data will then be analyzed for readmission rates, length of stay, and target dosing of medications. Data collected will be de-identified and will be kept on a password protected electronic file on the institutional server. This study has been reviewed and approved by the DHR institutional review board.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL XII-11

##### EVALUATION OF TREATMENT-DOSE ENOXAPARIN IN ACHIEVING INITIAL THERAPEUTIC ANTI-XA LEVELS IN MORBIDLY OBESE PATIENTS

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**BACKGROUND:** Morbid obesity (body mass index [BMI]  $\geq 40$  kg/m<sup>2</sup>) can affect the kinetics of many medications, including enoxaparin. Using the traditional treatment dose, based on total body weight, can potentially lead to over anti-coagulation in this population. This can increase the risk of adverse events such as bleeding.

**PURPOSE:** To determine the proportion of morbidly obese patients on treatment dose enoxaparin with initial therapeutic anti-Xa levels.

**METHODS:** The electronic medical record system was used to identify patients between July 1, 2016 and November 30, 2021 who had a BMI  $\geq 40$ , had received at least three treatment doses of enoxaparin, and had at least one anti-Xa level taken three to five hours following at least three identical consecutive enoxaparin doses. The following data was collected: age, gender, ethnicity, BMI, serum creatinine (SCr), creatinine clearance (CrCl), hemoglobin (Hgb), hematocrit (Hct), liver function enzymes (LFTs), past medical history, enoxaparin dose, indication for enoxaparin treatment dose, and anti-Xa levels. The primary objective of this study was to determine the proportion of morbidly obese patients on treatment dose enoxaparin with initial therapeutic anti-Xa levels (defined as 0.6 – 1.0 units/mL). The secondary end points focused on determining the enoxaparin dose associated with highest proportion of initial therapeutic anti-Xa levels, the proportion of

subtherapeutic and supratherapeutic anti-Xa levels, and the occurrence of bleeding, stroke, and venous thromboembolism (VTE) during treatment.

**RESULTS:** Twenty patients were included in the final analysis and had a mean BMI of 49.4 (standard deviation  $\pm$  9.13). Four patients (20%) had a therapeutic initial anti-Xa level. Of the patients who received traditional dosing (n=14, defined as 0.81 – 1.19 mg/kg), 21.4% were therapeutic and 78.6% were supra-therapeutic. Of the patients who received reduced treatment dose enoxaparin (n=6, defined as  $\leq$  0.8 mg/kg), 16.7% were therapeutic, 66.6% were supra-therapeutic, and 16.7% were subtherapeutic. The dose associated with most therapeutic anti-Xa levels was 0.97 mg/kg. Two patients experienced minimal bleeding and one patient experienced minor bleeding according to the TIMI bleeding score. All patients who experienced bleeding were dosed with one milligram per kilogram and had a supra-therapeutic initial anti-Xa level.

**CONCLUSION:** This results of this study showed that only a small proportion of patients who were dosed with traditional 1 mg/kg achieved therapeutic anti-Xa levels. While this study was not sufficiently powered to recommend dose reduction, observation from this study suggests less aggressive dosing may be needed. Further studies are needed to determine the most appropriate treatment dose enoxaparin in this patient population.

## PL XII-12

### A RETROSPECTIVE EVALUATION OF WEIGHT-BASED HEPARIN DOSING PROTOCOL IN MORBIDLY OBESE PATIENTS FOR THE TREATMENT OF VENOUS THROMBOEMBOLISM

Parth J Patel, Brady C. McMahon, Christina Yang, HCA Houston Healthcare Clear Lake, Webster, TX

**PURPOSE:** The purpose of this study was to evaluate the time to therapeutic activated partial thromboplastin time (aPTT) in patients with body mass index (BMI)  $\leq$  40 kg/m<sup>2</sup> and BMI > 40 kg/m<sup>2</sup>, receiving unfractionated heparin (UFH) therapy for acute venous thromboembolism (VTE) under the weight-based protocol at a 532-bed community medical center.

**METHODS:** This study was a retrospective, single-centered, chart review that was exempt from oversight by the Institutional Review Board. Data was collected

using electronic medical records and pharmacy surveillance software. Adults who were 18 years of age or older, received heparin infusion for at least 12 hours, and treated using the VTE heparin protocol from July 1, 2019 to June 30, 2021 were included. Patients that were pregnant were excluded. The primary efficacy outcome was time to first goal aPTT. The primary safety outcome was the occurrence of a bleeding event defined as a decrease in hemoglobin  $\geq$  2 g/dL with a transfusion of  $\geq$  2 units of red blood cells within 48 hours of initial UFH dose. The secondary outcomes were the following: evaluation of time to first goal aPTT with initial bolus versus no bolus, evaluation of time to first goal aPTT with dose capping versus no dose capping, time to and achievement of steady-state defined as two consecutive therapeutic aPTT readings, heparin dose at first goal aPTT and steady-state, protocol compliance with initial UFH rate, and percentage of subtherapeutic, therapeutic, and supratherapeutic levels at the time ranges of 0 to 12 hours, 12 to 24 hours, and 24 to 48 hours.

**RESULTS:** A total of 498 patients were assessed and 100 patients were included for statistical analysis, of which 50 had a BMI  $\leq$  40 kg/m<sup>2</sup> and 50 had a BMI > 40 kg/m<sup>2</sup>. The median time to therapeutic aPTT was 14.4 hours and 14.3 hours respectively (p=0.41). There was no significant difference in bleeding events between the two groups. There were similar results between groups for the all the secondary outcomes in this study. Median heparin infusion rate at first goal aPTT was 13 units/kg/hr in the BMI  $\leq$  40 kg/m<sup>2</sup> group and 15.5 units/kg/hr in the BMI > 40 kg/m<sup>2</sup> group (p=0.14). Median heparin infusion rate that achieved steady state was similar between groups (14.5 units/kg/hr in BMI  $\leq$  40 kg/m<sup>2</sup> and 16.15 units/kg/hr in BMI > 40 kg/m<sup>2</sup>, p=.11). The percentage of therapeutic aPTT levels within the time ranges of 0 to 12 hours (14 vs 20.37, p=0.45), 12 to 24 hours (32.88 vs 40.54, p=0.39), and 24 to 48 hours (53.42 vs 40.54, p=0.16) were not different between BMI  $\leq$  40 kg/m<sup>2</sup> and BMI > 40 kg/m<sup>2</sup> respectively.

**CONCLUSION:** Dosing heparin by adjusted body weight in the BMI > 40 kg/m<sup>2</sup> group was shown to achieve time to first goal aPTT within 24 hours of therapy along with no difference in bleeding events per our protocol.

## PL XII-13

### IMPACT OF A PHARMACY-DRIVEN DOSING PROTOCOL FOR DIRECT ORAL

## **ANTICOAGULANTS IN A COMMUNITY TEACHING HOSPITAL**

Nicole Nguyen, Christine Leigh Ellis, Mallory Gessner-Wharton, Misty John, Reba Forbess

**PURPOSE:** Direct oral anticoagulants (DOACs) are often used as alternatives to vitamin K antagonists for a variety of indications. However, over or under dosing of DOACs can lead to an increase in adverse effects such as bleeding or thrombosis. The objective of this study is to determine whether the implementation of a pharmacy-driven consult for DOAC dosing increases the percentage of patients prescribed the appropriate DOAC dose based on indication compared to physician prescribing practices.

**METHODS:** This is a single-center, retrospective, observational cohort study approved by the health system's research institute. The electronic medical record was reviewed to identify patients at least 18 years of age prescribed apixaban or rivaroxaban for non-valvular atrial fibrillation (AF), prophylaxis or treatment of venous thromboembolism (VTE), or peripheral artery disease (PAD). Patients meeting inclusion criteria were divided into one of two comparator groups: a pre-implementation group or a post-implementation group. A pharmacy-driven protocol for a new consult service was developed and implemented prior to data collection for the pharmacy-managed group. The primary outcome is percentage of patients prescribed the appropriate DOAC dose based on indication in concordance with FDA-approved dosing regimens. Secondary outcomes include incidence of major bleeding or clinically relevant non-major bleeding as defined by the International Society on Thrombosis and Haemostasis, and thrombotic events during hospitalization.

**RESULTS:** Research in progress.

**CONCLUSIONS:** Research in progress.

## **XII-C: Internal Med/Pharmacotherapy**

### **PL XII-14**

#### **COMPARISON OF UTILIZING A BASAL-BOLUS INSULIN PROTOCOL REGIMEN VERSUS SLIDING SCALE INSULIN AS MONOTHERAPY IN MEDICAL/SURGICAL**

## **TYPE 2 DIABETIC PATIENTS IN A COMMUNITY TEACHING HOSPITAL**

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**OBJECTIVE:** The purpose of this study is to evaluate the use of pharmacy driven "non- ICU insulin order set" versus sliding scale insulin (SSI) monotherapy and the effect each has on glycemic control in hospitalized patients

**METHODS:** This is a retrospective medical record chart review of patients admitted in HCA Houston Healthcare Kingwood between June, 2021 and November, 2021. Participants included non-critically ill hospitalized medical, surgical, and rehabilitation patients. The patients received either subcutaneous basal insulin glargine 0.1 units/kg daily, bolus insulin lispro 0.05 units/kg three times a day with meals, and sliding scale insulin lispro as needed or sliding scale insulin monotherapy with insulin lispro subcutaneous. The primary outcome measured was to assess and compare glycemic control and hyperglycemic events utilizing the basal-bolus insulin regimen versus sliding scale insulin monotherapy.

**RESULTS:** Pending (N/A)

**CONCLUSION:** Pending (N/A)

### **PL XII-15**

#### **EVALUATING THE UTILIZATION OF ALBUMIN IN PATIENTS ADMITTED FOR CARDIAC SURGERY**

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**PURPOSE:** Volume expansion following cardiac surgery is often necessary for many patients due to post-operative hypotension as a result of hypovolemia. Selection of intravenous fluid generally boils down to crystalloids versus colloids, with albumin considered the colloid of choice due to superior safety compared to non-protein colloid solutions. Although current patient blood management guidelines recommend the use of albumin after cardiac surgery for intravascular volume replacement and to minimize the need for transfusion, there is a paucity of robust evidence that its use is associated with meaningful outcomes such as reduction in mortality and decreased length of stay.

Few retrospective studies have proven that implementing restriction strategies is safe, and there is no difference in mortality or transfusion requirements in patients receiving crystalloid fluids or albumin. The purpose of this study is to evaluate current use of this high-cost drug in cardiac surgery patients at a 547-bed acute care facility with a large volume of cardiovascular surgical cases.

**METHODS:** This is a single-center, retrospective medication use evaluation of albumin in 102 patients who underwent cardiac surgery and were given at least one dose of albumin post-operatively between January 1, 2020 and May 31, 2021. Our primary outcomes included assessing the appropriateness of albumin use based on health system guidelines for albumin use (MAP < 60 mmHg or CVP < 8 mmHg with a crystalloid challenge attempted). Patients were also evaluated for the number of albumin doses (and amount in grams) given. Other outcomes measured included mortality, hospital length-of-stay, ventilator days, and transfusion of packed red blood cells (PRBCs).

**RESULTS:** Of the 175 patients who underwent cardiac surgery during the specified time frame, 102 (58%) received at least one dose of albumin post-operatively and met inclusion criteria. Of the 304 doses of albumin administered, 37% were administered appropriately based on health system guidelines. The median amount of albumin administered per patient was 37.5 grams. The serum albumin level prior to albumin administration was less than 3 g/dL in 47% of patients. An intravenous crystalloid fluid challenge was administered prior to albumin use in 69% of doses. Of these, 40% were administered after a crystalloid challenge with at least 1 L, 49% after a crystalloid challenge with 1 to 2 L, and 11% after a crystalloid challenge with more than 2 L. Among this patient population, mortality was 7%, the median hospital length-of-stay was 8 days, the median duration of mechanical ventilation was 6.6 hours, and the median number of PRBCs transfused per patient was 2 units.

**CONCLUSION:** Based on these results, albumin is routinely used as the first-line agent for fluid resuscitation in cardiac surgery patients at our local institution. The majority of albumin doses administered does not align with institutional guidelines for appropriate use in cardiac surgery patients.

## **PL XII-16 REAL WORLD CORRELATION OF LEVETIRACETAM DOSING AND THERAPEUTIC DRUG LEVELS.**

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**PURPOSE:** Levetiracetam is an antiepileptic drug (AED) found to be safe and effective in the treatment of neurologic disorders. Levetiracetam is dosed based on creatinine clearance due to renal excretion. Therapeutic drug monitoring for levetiracetam is beneficial in special populations – young and old age, renal dysfunction, and pregnancy. For patients with altered renal function, monitoring levetiracetam levels may ensure efficacy and prevent adverse effects. The purpose of this study was to determine real world correlation between levetiracetam dosing and serum drug levels.

**METHODS:** This study was an IRB approved, retrospective, multi-center chart-review on the correlation of levetiracetam doses and serum drug levels from 1/1/15-11/30/21. Adult patients  $\geq 18$  years of age with a levetiracetam level drawn as a trough at steady state were included. Exclusion criteria consisted of levels drawn <24 hours from admission, pregnancy, or concomitant continuous renal replacement or peritoneal dialysis. The primary outcome was to determine if levetiracetam doses that follow package insert recommended dosing result in therapeutic troughs (10-40 mcg/mL) more often than clinician-driven dosing. Secondary outcomes include dose change within 24 hours of level result, and need for rescue AEDs, defined as the administration of an AED as needed for seizure.

**RESULTS:** There were 2,204 adult patients with levetiracetam levels drawn during the study period of which 51 patients met criteria for inclusion. Median age was 63 years, and patients were 51% male. Twenty-six patients (76%) in the package insert dosing group (N=34) and 8 patients (47%) in the clinician-driven dosing group (N=17) had therapeutic troughs ( $p=0.04$ ). In the clinician-driven dosing group, 11 patients (65%) had higher dose frequency and 10 patients (59%) were administered doses higher than recommended. Twelve patients (35%) in the package insert dosing group and 5 (29%) in the clinician-driven dosing group required rescue AEDs.

**CONCLUSION:** Real world analysis of levetiracetam package insert dosing correlated with therapeutic serum levels, though does not appear to lower rates of rescue AEDs.

#### PL XII-17

##### **ASSESSMENT OF THE ADAPTATION OF GUIDELINE DIRECTED MEDICAL THERAPIES FOR PATIENTS WITH PERIPHERAL VASCULAR DISEASE AT A LARGE ACADEMIC MEDICAL CENTER: A RETROSPECTIVE REVIEW**

Ana Chavis, Jackoline Costantino, Thirsa Martinez, Bethlehem Gebremichael, Brooke Army Medical Center, Fort Sam Houston, TX

**PURPOSE:** The purpose of this process improvement project was to analyze the adaptation of guideline directed medical therapy (GDMT) and identify opportunities to optimize medical therapy in patients diagnosed with peripheral vascular disease.

**BACKGROUND:** Peripheral vascular disease (PVD) is a term used to encompass vascular diseases that result from circulatory dysfunction caused by damage to arteries or veins outside of the brain and heart. Peripheral artery disease (PAD), which affects the arteries of the lower extremities, is the most common type of PVD. Early diagnosis and intervention of PVD is crucial to preventing disease progression to more serious health complications, like major adverse limb events (MALE) and major adverse cardiovascular events (MACE). Patients with advanced disease requiring peripheral revascularization are at high risk for subsequent vascular complications, with a risk approximately four times higher than that of those who have never undergone revascularization. However, many patients with early-stage PAD are asymptomatic and are less likely to receive optimal medication therapy. Aggressive lifestyle modifications and optimizing medication therapy with antithrombotic, lipid-lowering, antihypertensive and glycemic controlling agents reduce complications and disease progression. In addition to guidelines directed medical therapies, the COMPASS trial established that low dose rivaroxaban plus aspirin reduces MALE and MACE in patients with PAD, with a minor increase in risk for bleeding. In the VOYAGER PAD trial, rivaroxaban demonstrated superiority in reducing these events in patients with PAD requiring revascularization. However, it has also been revealed that 10% to 15% of patients prescribed direct oral anticoagulants received an inappropriate dose and

frequency for the indication. Therefore, given the increasing prevalence of PVD, it is important to assess the adaptation of guideline directed medical therapy and newer therapy options for patients living with PVD to decrease risks and slowdown disease progression.

**METHODS:** A retrospective chart review was performed at a 425-bed medical center from July 1, 2020 to June 30, 2021. The patient's electronic health record (EHR), and an information delivery portal, were used to identify and collect information about patients diagnosed with PVD. The data collected will examine baseline characteristics, modifiable risk factors, comorbidities, statin therapy, antiplatelet therapy, and anticoagulation therapy, based on GDMT. This data will then be analyzed to determine opportunities for therapy optimization, and identify potential safety concerns with DOAC prescribing errors in this population. Data will be analyzed utilizing descriptive statistics.

**RESULTS:** Data collection and analysis in progress

**CONCLUSION:** To be determined

#### PL XII-18

##### **OPTIMIZING GUIDELINE-DIRECTED MEDICATION THERAPY PRIOR TO HOSPITAL DISCHARGE AND THE IMPACT ON READMISSION RATES IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION**

Kevin Keeley, Jackoline Costantino, Devon Jacobs, Thirsa Martinez, Brooke Army Medical Center, Fort Sam Houston, TX.

**PURPOSE:** Guideline-directed medical therapy (GDMT) for the treatment of heart failure with reduced ejection fraction (HFrEF) is well outlined and has been shown to both improve morbidity and mortality outcomes. Up to 60% of eligible patients do not receive or achieve optimal doses of GDMT in clinical practice resulting in an increase in number of acute decompensated heart failure (ADHF) exacerbations, and mortality. The purpose of this process improvement study was to assess whether inpatient optimization of maintenance GDMT for patients living with HFrEF had an impact on 30-day readmission rate, and to identify areas of opportunity and barriers to optimizing GDMT.

**METHODS:** This retrospective, single-center, observational cohort study was performed at a large academic military medical center from July 1, 2020 to June 30, 2021. The study population was TRICARE beneficiaries ages 18 years and older who had a primary admission diagnosis of ADHF and HFrEF. Patients were excluded from the study if they had heart failure with preserved ejection fraction (HFpEF), a primary admission diagnosis other than ADHF, or did not survive to hospital discharge. The two cohorts compared were patients discharged with or without optimization of GDMT during their admission or at discharge. Maintenance therapy optimization was defined as a GDMT dose increase, addition of a GDMT pharmacologic class at any dose, or maintaining/decreasing a GDMT dose with documented clinical reasoning (e.g. symptomatic bradycardia). The primary outcome was 30-day readmission rates for ADHF. The secondary outcomes were to identify percent utilization of GDMT agents approved for use in patients living with HFrEF upon admission and at discharge, and to identify reasons for not escalating GDMT during the hospital stay.

**RESULTS:** In progress.

**CONCLUSION:** To be determined.

#### PL XII-19

##### EVALUATION OF THE USE OF GUIDELINE-DIRECTED MEDICAL THERAPY IN PATIENTS WITH ACUTE CORONARY SYNDROME IN A COMMUNITY HOSPITAL

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**PURPOSE:** Approximately every 40 seconds, one American will have a myocardial infarction (MI). Of the 805,000 annual events, about 25% are recurrent. To reduce the risk of secondary cardiovascular complications, the American College of Cardiologists (ACC) and American Heart Association (AHA) recommend the use of specific pharmacologic agents after an acute coronary syndrome (ACS) event. Recent studies indicate many patients may not be discharged on the complete regimen recommended by the guidelines to decrease morbidity and mortality. This study seeks to evaluate the incidence of suboptimal prescribing of secondary prevention therapy at hospital discharge in patients diagnosed with ACS.

**METHODS:** In this single-center, retrospective study, a chart review of patients admitted for ACS will be used to assess utilization of guideline-directed medical therapy (GDMT) at hospital discharge to patients for secondary prevention. The medical records of patients admitted between February 2021 and August 2021 will be reviewed. Patient eligibility will be determined by pre-specified inclusion criteria, which includes patients who are  $\geq 18$  years of age and have a diagnosis of ST segment elevation myocardial infarction (STEMI) or non-ST segment elevation acute coronary syndrome (NSTEMI-ACS). Patients will be identified using ICD-10 codes I21.4, I20.0, and I21.3 for NSTEMI, UA, and STEMI, respectively. Patients who died during hospitalization, transferred to another hospital, or did not have an ACS diagnosis will be excluded. The primary endpoint is to evaluate the amount of patients diagnosed with ACS who are prescribed all the appropriate GDMT at time of hospital discharge. Secondary endpoints are prescribing rates for each pharmacologic class and the percentage of patients that received all the recommended agents based on the presence of comorbidities.

**RESULTS:** A total of 170 patients were evaluated for inclusion in the study, and of those, 145 patients met the inclusion criteria. The mean age of the patients was 66 years old, and the study patients were predominately Caucasian males. Of the 145 included patients, 10% (N=15) were prescribed the complete recommended regimen at hospital discharge. The prescribing rates for beta-blockers, angiotensin-converting enzyme inhibitors/angiotensin receptor blockers, high-intensity statin, aspirin, P2Y<sub>12</sub> inhibitors, and nitroglycerin were as follows: 80.69% (N=117), 57.79% (N=84), 53.79% (N=78), 80.69% (N=117), 56.55% (N= 82), 35.17% (N=51), respectively.

**CONCLUSION:** Based on the preliminary results, GDMT is inadequately prescribed at hospital discharge to patients after an ACS event. The results of this study may support the implementation of educational interventions to improve the prescribing of secondary prevention medications.

#### PL XII-20

##### IMPACT OF A LAYERED LEARNING MODEL ON STUDENT PHARMACISTS' ACADEMIC PERFORMANCE IN THE INPATIENT SETTING

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**PURPOSE:** Over the past two decades, the number of pharmacy schools in the United States has increased by almost 80%. The growth in pharmacy learners has urged the American Society of Health-System Pharmacists to recommend the use of a layered learning model to facilitate experiential training of student pharmacists and clinical teaching of pharmacy residents simultaneously. However, the impact of a layered learning model on student pharmacists' academic performance is incompletely characterized in the literature. Thus, the primary aim of this study is to evaluate the impact of a layered learning model on student pharmacists' academic performance in the inpatient setting.

**METHODS:** This is a multi-campus, retrospective, observational cohort study of student pharmacists who completed both Introductory Pharmacy Practice Experiences (IPPE) and Advanced Pharmacy Practice Experiences (APPE) in the adult medicine setting. Longitudinal data collection occurred for students in graduating classes of 2019 and 2020 between May 1st, 2018, and May 31st, 2020. Inclusion criteria are individuals aged 18 or older and precepted by a pharmacy resident or pharmacy faculty. Exclusion criteria are individuals who did not complete the adult medicine clinical clerkship due to circumstances other than academic reasons or completed inpatient clinical clerkship outside of an adult medicine environment. Subjects will be allocated to the control arm if the IPPE preceptor was a full-time/adjunct pharmacy faculty or the study arm if pharmacy resident. The primary outcome is the summative/overall adult medicine clinical clerkship score received by IPPE student pharmacists precepted by a pharmacy resident versus full-time/adjunct pharmacy faculty. Secondary outcomes include final learning outcome scores on patient care process competencies, rotation-specific competencies, interprofessional competencies, and professionalism for IPPE and APPE, retention of clinical knowledge between IPPE and APPE, and IPPE student pharmacists' perception of preceptorship model. All data were obtained and blinded from the experiential office. Statistical analysis will include t-tests and chi-square tests to compare continuous data and categorical data, respectively.

**RESULTS/CONCLUSION:** The study is currently in the statistical analysis phase.

## XIII-A: Oncology

### PL XIII-1

#### MEDICATION ADHERENCE IN MULTIPLE MYELOMA PATIENTS TAKING IMMUNOMODULATORS AT A COUNTY HOSPITAL

Oyinkansola Akindele, Onyebuchi Ononogbu, Harris Health System, Houston, Texas

**PURPOSE:** The aim of our study is to evaluate medication adherence rates in multiple myeloma patients taking immunomodulators (IMiDs) and to determine potential barriers to adherence in a county hospital.

**BACKGROUND:** Immunomodulators (lenalidomide, pomalidomide and thalidomide) are oral oncolytics used in the treatment regimens of patients with multiple myeloma. Oral chemotherapy offers some advantages over the intravenous route including ease and flexibility of administration. However, one of the most important challenges faced by patients being treated with oral chemotherapy is adherence. Poor adherence to oral chemotherapy worsens clinical outcomes and increases overall healthcare costs. While data on adherence rates among patient with multiple myeloma are lacking, some studies have found high immunomodulator adherence rates of 85-97% among patients with multiple myeloma (Lee et al., 2016, Cransac et al., 2019). But much remains to be known about immunodulator adherence at a county hospital that serves indigent and disenfranchised patients.

**METHODS:** We conducted a retrospective chart review evaluating medication adherence in multiple myeloma patients between May 2019- May 2021. Patients were included if they had a diagnosis of multiple myeloma, were at least 18 years of age and received treatment with our formulary agents lenalidomide or pomalidomide at one of the outpatient clinics at Harris Health System for at least 3 months or had 2 or more records of dispensations. We measured adherence using Medication Possession Ratio (MPR) which is defined by total days' supply of IMiDs dispensed/ number of days between the first dispensation and the end of the last dispensation x 100. MPR >90% was considered adherent. Dispensation data was obtained from our hospital electronic medical record database.

**RESULTS:** Retrospective data collection is still in progress. Analysis will be completed by April 2022.

**CONCLUSION:** Conclusions will be presented pending completion of data analysis.

**PL XIII-2  
EVALUATION OF GRANULOCYTE  
COLONY STIMULATING FACTOR (G-CSF)  
IN B-CELL LYMPHOMA AT A  
COMPREHENSIVE CANCER CENTER.**

Leah Samman, Elizabeth Diller, Brian Primeaux, The University of Texas MD Anderson Cancer Center, Houston, Texas.

**PURPOSE:** This quality improvement project aimed to decrease the use of G-CSF outside of guideline recommendations, as defined by the NCCN Hematopoietic Growth Factors guideline, in B-Cell lymphoma by 20% by May 2022 at MD Anderson Cancer Center.

**METHODS:** Using data retrospectively collected from the institution's electronic medical records on patients with B-cell lymphoma between July 2019 and July 2021, we evaluated the use of therapeutic G-CSF for compliance with the NCCN Hematopoietic Growth Factors guideline. Inappropriate use of G-CSF was defined as patients who received doses without the presence of febrile neutropenia or with febrile neutropenia in the absence of risk factors for infection-associated complications. To increase compliance physicians, advanced practice providers, and clinical pharmacists were provided with education on guideline recommendations for the use of therapeutic G-CSF. Post-educational intervention data was collected on patients after the intervention.

**RESULTS:** In the pre-interventional phase, 81 patients met inclusion criteria. 39 patients (48%) met criteria for appropriate use, while 42 patients (52%) were considered inappropriate. 7 patients (9%) received G-CSF despite having an absolute neutrophil count of greater than 1000 cells/ $\mu$ L. Patients with inappropriate G-CSF use received a median number of 2 doses. Collection and analysis of post-educational intervention data is ongoing.

**CONCLUSION:** At baseline, 52% of patients had inappropriate use of G-CSF as defined by the NCCN Hematopoietic Growth Factors guideline. The educational intervention served to positively reinforce prescribing practices and emphasized avoiding G-CSF

use in patients who do not meet criteria. Conclusions are subject to change following the collection and analysis of post-educational intervention data.

**PL XIII-3  
VTE PROPHYLAXIS QUALITY  
IMPROVEMENT INITIATIVE AT A LARGE  
CANCER HOSPITAL**

Christopher Wang, Katy Toale, The University of Texas MD Anderson Cancer Center, Houston, TX

**PURPOSE:** Previous studies suggest that quality improvement initiatives focused on preventing hospital-acquired venous thromboembolism (VTE) have a positive impact on prescribing rates of VTE prophylaxis, especially those that incorporate computerized changes. We conducted a quality improvement project to determine whether education and computerized prescriber order entry (CPOE) system changes affect VTE prophylaxis compliance rates in hospitalized medical patients at a Comprehensive Cancer Center.

**METHODS:** Using aggregate patient data obtained retrospectively from the institution's electronic records on all admitted patients with a length of stay >48 hours, we calculated monthly VTE prophylaxis compliance rates before and after a series of educational interventions and implementation of CPOE system changes from Jan 2021 to April of 2022.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

**PL XIII-4  
OUTCOMES OF DOSE ADJUSTED BEAM  
THERAPY IN ELDERLY LYMPHOMA  
PATIENTS PRIOR TO AUTOLOGOUS STEM  
CELL TRANSPLANT.**

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**PURPOSE:** High-dose chemotherapy (HDT) followed by autologous stem cell transplant (ASCT) significantly increases progression free survival (PFS) and overall survival (OS) in patients with relapsed/refractory NHL. High-dose therapy with BEAM (carmustine, etoposide, cytarabine, melphalan) has become the most widely used conditioning regimen; however, the intensity of chemotherapy utilized in the transplant process may not be tolerated in certain populations such as the

elderly. Dose reductions (DR) have been explored in other practice settings to improve tolerability in elderly, however this has not been evaluated in patients receiving BEAM HDT-ASCT. This pre-post intervention analysis assesses the efficacy and safety of a 20% DR in BEAM therapy in the elderly.

**METHODS:** This IRB approved pre-post intervention analysis of patients  $\geq 70$  years receiving BEAM followed by ASCT, was performed from January 2015 through November 2021. A DR was applied to patients  $\geq 70$  years beginning in March 2017, in which patients received a 20% dose reduction of carmustine, etoposide, and cytarabine. The DR cohort was compared to a similar population who received full dose (FD) BEAM. Patients were excluded if they had testicular lymphoma or CNS involvement of lymphoma at time of transplant. The primary outcome was treatment related mortality (TRM) by day +100. Key secondary endpoints included overall survival at 100-days and 1-year, progression-free survival at 1-year, incidence of toxicities as defined by CTCAE v4.03, and escalation to a higher level of care.

**RESULTS:** A total of 41 patients were included in the final analysis. The DR cohort comprised of 22 patients and the FD cohort had 19 patients. Most patients were male (66%) and the primary lymphoma subtype was DLBCL (47%). There was no difference in TRM among cohorts (18% vs 10%). All grade adverse events were common; however, there were more grade 3 and 4 adverse events in the non-intervention group (11% vs 5%). Rates of infection were lower in patients that had a DR (42% vs 18%). However, more patients required escalation of care in the DR group compared to FD (23% vs 11%).

**CONCLUSION:** Implementing a 20% DR for BEAM was not associated with increased TRM. However, as compared with FD BEAM, DR was associated with lower grade 3-4 toxicities and fewer infections.

**PL XIII-5  
INCIDENCE OF SEVERE IMMUNE-RELATED  
ADVERSE EVENTS IN MELANOMA  
PATIENTS RECEIVING IMMUNE  
CHECKPOINT INHIBITORS.**

Jordan Farshchi-Zarrabi, Robbie Chrisitan, Carli Nesheiwat, Brittany Gorden, Our Lady of the Lake Regional Medical Center, Baton Rouge, LA.

**PURPOSE:** Immune checkpoint inhibitors (ICI) have become a mainstay in oncology treatment, including melanoma. The incidence of immune-related adverse events (IRAE) with ICI single-agent therapy is 15-90% for any grade and 1-13% for severe grades. The presence of severe IRAEs may lead to treatment interruption or addition of immunosuppressive therapies. The development of severe IRAEs with combination ICIs led to reported treatment discontinuation in over 40% of patients in one analysis. The incidence of severe IRAEs is unknown at our institution. This study will compare the incidence of severe IRAEs in melanoma patients when receiving monotherapy or dual ICI treatment.

**METHODS:** This study is an IRB-approved retrospective chart review of adult patients who have received ipilimumab, nivolumab, and/or pembrolizumab for treatment of melanoma at an Our Lady of the Lake Regional Medical Center infusion center. Patients receiving simultaneous non-ICI chemotherapy will be excluded. Eligible patients who received therapy from March 1, 2017, to August 1, 2021 will be collected and included. Patients will be followed during ICI treatment and up to 6 months post-ICI therapy. All data will be deidentified and stored on a password protected file. The primary endpoint is to compare the incidence of severe IRAEs in melanoma patients when treated with monotherapy or dual ICIs. The secondary endpoints include time from the first ICI dose to the incidence of severe IRAE, incidence of death from a severe IRAE, rate of treatment discontinuation due to IRAE, and rate of hospitalization from IRAE.

**RESULTS:** Data analysis is currently in process and will be presented upon completion.

**CONCLUSION:** The conclusion is currently in process and will be presented upon completion.

**PL XIII-6  
CHARACTERIZATION OF THE SAFETY OF  
DOSE-CAPPING PEGASPARGASE IN ADULT  
ACUTE LYMPHOCYTIC LEUKEMIA  
PATIENTS.**

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**PURPOSE:** To characterize the risks associated with toxicities and determine the cost-savings of dose-capping pegaspargase in adult acute lymphocytic

leukemia (ALL) patients (pts). Asparaginase-containing regimens have demonstrated improved outcomes in adult ALL pts. However, they require careful management due to potentially life-threatening toxicities. Pegaspargase has historically been dosed at 2,500 units/m<sup>2</sup> in adult pts, but evidence suggests utilizing lower doses can minimize toxicity while preserving efficacy. To reduce potential toxicity and costs, the practice of dose-capping pegaspargase to one vial (3,750 units) has increased within our institution. However, concern for negatively impacting survival outcomes has led to varying dosing strategies.

**METHODS:** A retrospective chart review was conducted in adult pts (> 18 years old) with ALL treated with pegaspargase at UTSW Medical Center from 01/2013-08/2021. The primary objective was incidence of grade 3 or higher pegaspargase-related adverse events in pts receiving pegaspargase with or without a dose-cap. Adverse events included thromboembolism, hemorrhage, hepatotoxicity, or pancreatic toxicity. Secondary endpoints were the incidence of treatment failure, the point at which therapy failed, the percent dose difference if capping occurred, and the associated cost-savings. EPIC EHR Software System was utilized to identify pts, and pt data was analyzed using descriptive and inferential statistics. Pts were excluded if they crossed over from capped to non-capped doses through their treatment regimen or had a diagnosis of CML or NKT lymphoma. Seventy pts were screened and 44 were included for analysis. Pts were excluded for the following reasons: non-ALL diagnosis (n=12), age (n=1), and dose changes (n=13).

**RESULTS:** Overall, 66% of pts experienced grade 3 or higher toxicity; 13% of capped pts experienced toxicity vs 52% of uncapped. Of those who experienced toxicity but received all intended courses (n=17), 35% were capped vs 65% were uncapped. All of those who experienced toxicity and did not receive all intended courses were uncapped (n=12). Toxicity was statistically more likely to occur in Course 1. On average it took 10 days for toxicity to manifest and there was not a statistically significant difference between arms (p=0.38). Adjusting for known risk factors, female gender was significantly correlated with an increased likelihood of toxicity (p=0.015). However, obesity, age > 35, and a history of diabetes or baseline liver dysfunction trended toward significance. Hepato- and pancreatic toxicity were equally likely in those requiring dose omission (n=3

each). Two pts required ICU admission, one for hemorrhagic stroke, another for pancreatic necrosis and hypotension. Eleven pts received 30 capped doses with an average dose reduction of 26.2%. Dose capping could have saved ~\$1 million.

**CONCLUSION:** No statistical difference was seen between capped or uncapped doses as it relates to grade 3 or greater toxicities. If toxicity occurred, it was most likely in Course 1 and more common in females. Clinically, dose capping resulted in less toxicity, fewer dose omissions and would result in substantial cost savings. However, this study did not meet power. So, the results need to be interpreted cautiously given the small sample size, and the decision to dose-cap pegaspargase needs to be further examined.

### PL XIII-7

#### **RATES OF IMMUNE-RELATED ADVERSE EVENTS IN PATIENTS WHO RECEIVED A COVID VACCINATION WHILE ON SINGLE AGENT IMMUNOTHERAPY**

Katherine Hill, Jill Comeau, Calette Corcoran Lee, Thaddaeus Wallace, Elizabeth Stephenson, Kavitha Beedupalli, Sireesha Vutukuri. Ochsner LSU Health Shreveport, Shreveport, LA.

**PURPOSE:** To determine if COVID vaccinations increase the rates of immune-related adverse events (irAEs) in patients with cancer receiving programmed cell death protein-1 (PD-1) or programmed cell death ligand-1 (PD-L1) immune checkpoint inhibitors (ICIs).

**METHODS:** A retrospective chart review was conducted utilizing the electronic medical records from December 1, 2020 to August 31, 2021 of patients aged 18-89 who have confirmed cancer diagnoses, received an immune checkpoint inhibitors (nivolumab, pembrolizumab, durvalumab, atezolizumab, cemiplimab, and avelumab) at Feist Weiller Cancer Center at Ochsner LSU Health Shreveport and/or Monroe Medical Center. The primary objective is to determine the occurrence of irAEs in patients receiving single agent immunotherapy who have received a COVID vaccine compared to those who have not received the vaccine. Secondary objectives include the severity of irAEs (grade 1-5), differences in irAEs based on vaccine manufacturer, and completion of the COVID vaccine series.

**RESULTS/CONCLUSION:** Over 80 patients were screened with 75 patients meeting inclusion criteria for analysis. The final results are currently pending and will be presented.

## **XIII-B: Internal Med/Pharmacotherapy-2**

### **PL XIII-8**

#### **CONCORDANCE WITH GUIDELINE-DIRECTED THERAPY FOR SECONDARY PREVENTION OF ISCHEMIC STROKE AT HOSPITAL DISCHARGE**

Emily M. Buatois, Jeremy H. Johnson, Kenna D. Payne, Krystal K. Haase, Eric J. MacLaughlin, Texas Tech University Health Sciences Center Jerry H. Hodge School of Pharmacy, Amarillo, TX.

**PURPOSE:** To characterize prescribing practices and the factors that influence guideline-concordant prescribing of secondary stroke prevention treatments at hospital discharge at a primary stroke center in West Texas. Prior studies have emphasized the importance of appropriate prescribing of secondary prevention medications at discharge. Appropriate and timely follow-up after discharge is also imperative. Overall, medications prescribed on discharge may be associated with improved long-term adherence.

**METHODS:** We planned to include adult patients admitted between January 2018 and March 2020 with a diagnosis of acute ischemic stroke or transient ischemic attack based on ICD10 codes. Patients with a history of atrial fibrillation/flutter, use of an oral anticoagulant before hospital admission, intracranial bleeding during admission, history of prior stroke, and patients designated hospice or palliative care were excluded. We collected retrospective data from the institution's electronic medical records, and we reviewed medication administration records for high-intensity statins and antiplatelet agents. Select secondary endpoints included patient demographics, stroke severity, renal function, discharge location, planned follow-up appointments and type of specialist to be seen, and agent and dose of antihypertensives, statins and antiplatelets.

**RESULTS:** Data collection is ongoing. No interim-analysis or results are available to report at this time. Basic descriptive statistics will be used for the primary objective. Multiple regression analysis will be used to evaluate factors associated with prescribing patterns.

**CONCLUSION:** To be determined upon result analysis.

### **PL XIII-9**

#### **APIXABAN VERSUS WARFARIN FOR NON-VALVULAR ATRIAL FIBRILLATION PATIENTS WITH END STAGE RENAL DISEASE ON DIALYSIS: A RETROSPECTIVE COHORT STUDY**

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**BACKGROUND:** The optimal management of stroke prevention in patients with non-valvular atrial fibrillation (NVAf) on dialysis remains unknown. Warfarin has been the gold standard for anticoagulation in patients with chronic kidney disease and NVAf, according to the 2014 ACC/AHA guidelines for the management of atrial fibrillation. A focused update to the atrial fibrillation guidelines in 2019 introduced the statement that apixaban use in dialysis patients might be feasible but further studies are warranted. This updated recommendation is likely due to potential safety and efficacy concerns in regard to warfarin therapy in end stage renal disease patients (ESRD).

**PURPOSE:** The purpose of this study is to compare the incidence of bleeding and stroke in patients with NVAf and ESRD on dialysis taking apixaban versus warfarin to determine if apixaban is a safe alternative in these patients.

**METHODS:** This retrospective cohort study has been approved by the Institutional Review Board. Patients at least 18 years of age admitted to the University of Texas Southwestern (UTSW) Medical Center or an associated outpatient clinic between January 1, 2018, and October 31, 2021, with a diagnosis of NVAf, dependent on renal dialysis, and on apixaban or warfarin were included. The diagnosis of NVAf and dialysis were determined by the use of ICD10 codes documented in the patient's electronic medical record. Patients diagnosed with acute kidney injury, on continuous renal replacement therapy, on another anticoagulant other than apixaban or warfarin, or with a history of mitral valve stenosis or heart valve surgery were excluded. The primary endpoint is the incidence of major bleeding as defined by The International Society on Thrombosis and Haemostasis (ISTH) criteria. The secondary endpoints include the incidence of stroke or systemic embolism, and the incidence of clinically relevant non-major bleeding.

**RESULTS:** In progress

**CONCLUSIONS:** In progress

#### PL XIII-10

##### **OPTIMAL DURATION OF TRIPLE ANTI-THROMBOTIC THERAPY IN PATIENTS WITH ATRIAL FIBRILLATION FOLLOWING ACUTE CORONARY SYNDROME**

Harneal S. Diocee, Kathleen A. Lusk, Amanda K. Kitten, University of the Incarnate Word Feik School of Pharmacy, San Antonio, TX

**PURPOSE:** To determine the optimal duration of triple antithrombotic therapy (TAT) in patients with atrial fibrillation (AF) following acute coronary syndrome (ACS) before transitioning to dual antiplatelet therapy (DAPT). Following ACS, patients are indicated for DAPT with aspirin and a P2Y12 inhibitor, most commonly for 12 months, with the aspirin being continued for life. Patients with AF can have an indication for anticoagulation for stroke prevention with an oral anticoagulant. For patients with AF following ACS, the duration to continue triple therapy with oral anticoagulation and DAPT is unclear.

**METHODS:** Single center retrospective chart review study of patients having recently undergone percutaneous coronary intervention (PCI) within one week and prescribed a direct oral anticoagulant for AF, will be conducted at an academic medical center in San Antonio, TX between January 1st, 2016, to January 1st, 2021. Patients will be stratified into 3 groups based on duration of triple antithrombotic therapy, including: less than one week from PCI, between one week and one month from PCI, and greater than one month to once year from PCI. Primary and secondary outcomes include bleeding, ischemic events, death, and hospitalizations for revascularization and bleeding in each time interval. Rates of intensification or de-escalation of P2Y12 inhibitors will also be recorded.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL XIII-11

##### **DISCHARGE OUTCOMES IN PATIENTS WITH ACUTE CORONARY SYNDROMES BASED ON CHOICE OF P2Y12 INHIBITOR**

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**PURPOSE:** To compare the safety and efficacy of ticagrelor versus prasugrel in patients with acute coronary syndrome (ACS) who undergo percutaneous coronary intervention (PCI).

**BACKGROUND:** Previous randomized controlled trials are heterogenous in nature and have failed to form a consensus on the superiority of ticagrelor versus prasugrel. Meta-analyses have also failed to demonstrate statistically significant differences in outcomes between the two agents. In a recent head-to-head randomized controlled trial, prasugrel demonstrated superiority over ticagrelor in efficacy and similar in safety outcomes. The open labeled study design and high rate of P2Y12 inhibitor discontinuation and crossover lead to reduced validity of the results.

**METHODS:** A single center, retrospective cohort study of patients who are  $\geq 18$  years old, hospitalized for ACS, and have undergone PCI will be conducted at an academic medical center. ACS is defined as unstable angina (UA), non-ST-elevation myocardial infarction (NSTEMI), and ST-elevation myocardial infarction (STEMI). Patients will be stratified into two groups based on whether ticagrelor or prasugrel was prescribed. The primary endpoint is a composite of death, myocardial infarction, or stroke within 12 months of P2Y12 inhibitor initiation. Secondary endpoints include a composite of death, myocardial infarction, and stroke within 30 days of P2Y12 inhibitor initiation, and rate of stent thrombosis within 12 months of P2Y12 inhibitor initiation. Exploratory analyses will include prasugrel dose and rate of P2Y12 inhibitor crossover.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL XIII-12

##### **SODIUM ZIRCONIUM CYCLOSILICATE VERSUS PATIROMER IN ACUTE HYPERKALEMIA**

Katelyn Gibson, Elizabeth Stephenson, Abigail Gould, Heather Baker, Khang Tran, Kristyn Edwards, Victoria Miller, Ochsner LSU Shreveport, Shreveport, LA

**PURPOSE:** Currently, no published studies compare the efficacy of sodium zirconium cyclosilicate and patiromer in the acute management of hyperkalemia. The purpose of this study is to evaluate the change in serum potassium levels in patients receiving sodium zirconium cyclosilicate versus patiromer in acute hyperkalemia.

**METHODS:** This study was a single-center, retrospective chart review using electronic medical records. Patients included in this study were between 18 to 89 years old and received either sodium zirconium cyclosilicate or patiromer for the treatment of hyperkalemia. Patients excluded from the study were those who received renal replacement therapy within 48 hours post potassium binder administration, received both sodium zirconium cyclosilicate and patiromer, received sodium polystyrene sulfonate, and patients admitted to ICU when potassium binder was initiated. The primary outcome compared the change in serum potassium levels at 1 to 24 hours post potassium binder administration in hyperkalemia patients receiving sodium zirconium cyclosilicate versus patiromer. Secondary outcomes compared the change in serum potassium levels at 24 to 48 hours post potassium binder administration, the average time for serum potassium levels to return to normal range post potassium binder, the change in serum potassium levels at 1 to 24 hours post potassium binder administration in patients receiving sodium zirconium cyclosilicate versus patiromer without the use of other hyperkalemia rescue medications, and the change in serum potassium levels at 1 to 24 hours and 24 to 48 hours post potassium binder administration in patients who received sodium zirconium cyclosilicate once daily versus three times daily.

**RESULTS:** A retrospective analysis of 236 patients was performed. There were 69 patients in the patiromer arm and 167 patients in the sodium zirconium cyclosilicate arm. There was not a statistically significant change in the average serum potassium levels at 1 to 24 hours post potassium binder administration. The average reduction in potassium levels for patiromer was 0.633 versus 0.875 for sodium zirconium cyclosilicate ( $p = 0.689$ ). For secondary outcomes there were no statistically significant differences between sodium zirconium cyclosilicate and patiromer.

**CONCLUSION:** Sodium zirconium cyclosilicate and patiromer did not show a significant difference in efficacy in patients with acute hyperkalemia.

### PL XIII-13

#### EVALUATION OF INTRAVENOUS AND ORAL VITAMIN K ADMINISTRATION FOR TREATMENT OF CIRRHOSIS-RELATED COAGULOPATHY

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**PURPOSE:** It is common practice in many hospitals to administer Vitamin K to patients with an elevated INR due to cirrhosis-related coagulopathy who are undergoing a procedure or have an active bleed. Despite this practice, the current evidence is not convincing that this reduces the patient's risk of bleeding. The primary purpose of this study is to examine the effect of intravenous and oral Vitamin K on INR levels in patients with cirrhosis-related coagulopathy to determine whether the patients are at decreased risk of bleeding after receiving the medication.

**METHODS:** A multi-center, retrospective chart review was conducted using electronic medical records from December 2019 to September 2021. The study population included patients aged 18-89 who received intravenous or oral Vitamin K due to an elevated INR from cirrhosis-related coagulopathy. Patients were excluded if they were taking therapeutic doses of anticoagulants, had pre-existing coagulopathies, received subcutaneous Vitamin K during the inpatient stay, had no INR level prior to intravenous or oral Vitamin K administration, had no repeat INR level after intravenous or oral Vitamin K administration, were pregnant, or incarcerated. The primary objective was to determine whether the patient achieved at least 10% lowering of INR after first dose of intravenous or oral Vitamin K administration. The secondary objectives measured rates of adverse outcomes including bleeding, thrombotic events, hypersensitivity reactions, and mortality during admission. The study also examined the effect of intravenous or oral Vitamin K on a subgroup of patients with an INR  $> 2$  upon admission.

**RESULTS:** A total of 64 charts were reviewed with 46 included and 18 excluded. Nineteen of the 46 included patients (41.3%) met the primary outcome. Eight of 46 patients (17.4%) experienced a bleeding event. There were no incidences of hypersensitivity reactions or thrombotic events. Nine of the 46 patients (19.6%) passed away during the encounter. There

were 37 patients (80.4%) who presented with a pre-INR greater than 2.0. Of those 37 patients, 15 (40.5%) had at least a 10% reduction in INR post-vitamin K administration.

**CONCLUSIONS:** A large proportion of the patients met the primary outcome with INR lowered by at least 10% after receiving intravenous or oral Vitamin K. The rates of adverse effects from Vitamin K administration were low, with bleeding being the sole adverse event. This outcome has confounding factors such as bleeding that was occurring prior to Vitamin K administration, as many patients presented with bleeding. The mortality rate was quite high in this patient population, which likely indicates the disease was more progressed upon presentation. In contrast to previous studies, our results suggest decreased efficacy in the subset of patients who have an INR greater than 2.0 prior to Vitamin K administration. Due to the limitations of the study and the small sample size, further research is needed in this area.

### XIII-C: Nutrition/Outcomes/Misc

#### PL XIII-14

#### CULTURAL SENSITIVITY IN INTERPROFESSIONAL PATIENT CARE SIMULATION

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**PURPOSE:** Assess student awareness and value for interprofessional collaboration to solve cultural sensitivity issues.

**BACKGROUND:** Cultural sensitivity interprofessional training is growing as an element of the curricula for many healthcare disciplines. Culturally sensitive care is associated with improved medication adherence, patient satisfaction, and health outcomes. However, there is a lack of evidence-based practices for how to execute this type of training.

**METHODS:** This study has been approved by Institutional Review Board. The Interprofessional Education (IPE) event will consist of pharmacy, physician assistant and social work students. The first component of the activity will be the patient panel. Patients will be recruited from the community to represent various special populations to speak about topics they feel future healthcare professionals should be aware of. The final piece will consist of students being divided into interprofessional teams where they

will work together to complete a patient case centered around best practices for interviewing. After the IPE, students will complete a survey which will consist of Likert-type scales and open-ended questions to assess the primary objective. Descriptive and inferential statistics will be performed using Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corp., Armonk, NY). Open ended questions will be assessed using content analysis.

**RESULTS/CONCLUSION:** Pending Data Collection

#### PL XIII-15

#### EFFECTIVELY UTILIZING TOTAL PARENTERAL NUTRITION IN HOSPITALIZED PATIENTS

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Amarillo, TX.

**PURPOSE:** Malnutrition is something that can occur often in critically ill patients. Acute malnutrition can be a caloric deficit due to overall starvation on presentation or even from catabolic effects such as (muscle wasting, insulin resistance, as well as electrolyte imbalances due to infection severity. Although the goal is to correct the nutrition balance in a timely manner, doing this too fast can increase the risk for fatal outcomes. Malnutrition in critically ill patients is typically treated with supplemental nutrition. The ability to adequately provide patients with nutritional support can positively impact morbidity, mortality, as well as hospitalization stay.

The purpose of this study was to evaluate the appropriateness of custom vs premixed TPN in patients at risk for malnutrition and identify opportunities for improvement in its use and monitoring.

**METHODS:** This is a retrospective chart review of patients with TPN or Clinimix ordered between January 1, 2019 and December 1, 2019 at Baptist Saint Anthony Hospital in Amarillo, Texas. Baseline characteristics will include indication, eligibility for enteral nutrition, primary diagnosis, location, malnutrition risk, NUTRIC score, timeframe to initiation, length of use. The purpose of this review is to evaluate if TPN is being used appropriately in the setting of malnutrition.

**RESULTS:** Data collection and analysis is currently ongoing.

**CONCLUSION:** Conclusion to be presented following the completion of data collection and analysis.

**PL XIII-16**

**INVESTIGATING THE ASSOCIATION OF HEPATIC DYSFUNCTION WITH SMOFLIPID® AS COMPARED TO INTRALIPID® IN NEONATES**

Andrew Soliman, Alisha Barron-Clark. CHRISTUS Trinity Mother Frances Health System, Tyler, TX.

**PURPOSE:** To assess the prevalence of hepatic dysfunction in neonates who received SMOFlipid® compared to Intralipid®.

**BACKGROUND:** Routine treatment in the Neonatal Intensive Care Unit (NICU) may include administration of parenteral nutrition to preterm or term neonates to offset the high nutritional demand when enteral nutrition is not tolerated. Intravenous lipid emulsions (ILE) provide a source of nonprotein calories and fatty acids for a combined benefit of preventing essential fatty acid deficiency. Intralipid® has a high content of omega ( $\omega$ )-6 fatty acid, linoleic acid, and phytosterols; however, lacks docosahexaenoic and arachnoid acids. Multiple mechanisms have been proposed to increase hepatic dysfunction when utilizing Intralipid® including high  $\omega$ -6 to  $\omega$ -3 fatty acid ratio, decreased vitamin E isoform  $\alpha$ -tocopherol, and phytosterol induced toxicity. SMOFlipid® is a newer lipid formulation that has a more diversified profile, which potentially allows for less hepatic dysfunction. Though limited data is available to assess the safety of SMOFlipid® in neonates, recent studies have shown potential for SMOFlipid® in decreasing oxidative injury, increased antioxidant effect, and possibly providing hepatoprotective properties when compared to Intralipid®.

**METHODS:** Single-center, observational, retrospective chart review study at a Level III NICU evaluating neonates who received ILE from January 2021 to December 2021. The primary endpoint evaluated laboratory signs of hepatic dysfunction defined as an abnormal triglycerides level > 150 mg/dL. The secondary endpoint evaluated other laboratory signs of hepatic dysfunction such as direct bilirubin >2 mg/dL, intravenous lipid emulsion dose associated with the primary endpoint, and decrease in weight related to discontinuation of ILE.

**RESULTS:** Data analysis is in progress.

**CONCLUSION:** Research is in progress.

**PL XIII-17**

**REVENUE ANALYSIS COMPARING REIMBURSEMENT RATES OF CETUXIMAB AND PANITUMUMAB IN PATIENTS WITH EGFR-POSITIVE METASTATIC COLORECTAL CANCER FOR A HOSPITAL-BASED OUTPATIENT INFUSION CENTER**

Brock Snelson, Jerri Cody, Danielle Norris, Alex Ehrhart, Christopher Brown, Norman Regional Health System, Norman, Oklahoma

**PURPOSE:** Cetuximab and panitumumab are considered to be non-inferior when previously compared in prior studies and are considered interchangeable in many treatment plans for colorectal cancer. However, the cost of these therapies and therefore the overall revenue per insurance type, is not equivalent. Although finding the difference in overall revenue for both individual treatments alone would yield beneficial information, independent and dependent variables must be considered in the net cost of treatment to reveal a true cost savings. This study sought to identify the difference in total revenue, through multiple insurance types, between cetuximab and panitumumab.

**METHODS:** This is a retrospective, revenue comparison conducted at the Norman Regional Health System hospital-based outpatient infusion center including adult patients between January 1, 2020 and December 31, 2020 whom received at least one dose of either cetuximab or panitumumab for colorectal cancer. To identify eligible patients for study inclusion, an internal drug utilization report was performed through the hospital's electronic medical record. Patients less than 18 years of age or being treated for diagnoses other than colorectal cancer were excluded from this study. Note, inclusion/exclusion criteria based on indication was later redacted due to a lower than expected patient population in the cetuximab group. Microsoft Excel will be used to manually enter independent and dependent variable costs of the following: pre-medications per administration (unless cost is found to negligible; <\$10), adverse effect management (if applicable), magnesium supplementation (if applicable), and/or hospitalization. With the assistance of the Norman Regional Health System billing department, the total charge per visit submitted to each patient's insurance

will be used to calculate a final revenue or loss. The reimbursement for both cetuximab and panitumumab through various insurance types (Medicare, Medicaid, private insurance) will then be directly compared in order to find which study therapy will yield a greater revenue.

**RESULTS:** A total of 9 patients with 101 patient accounts/visits were eligible based on the inclusion/exclusion criteria. There was a total of 7 patients in the panitumumab group and 2 patients in the cetuximab group. All patients had multiple visits resulting in multiple accounts to be reviewed and results averaged. No patients in either groups had identical insurances for direct comparison. For insurances used in the panitumumab group, a profit was identified in 66.7% of claims. For insurances used in the cetuximab group, a profit was identified in 50% of claims. There was a direct correlation between the total cost per visit and the total profit per visit.

**CONCLUSION:** The number of patients in this study, particularly in the cetuximab group, was much lower than predicted. However, based on the limited data, panitumumab yielded a higher rate of profitable reimbursement compared to cetuximab. Although, further data collection would be beneficial for a more confident conclusion.

#### **PL XIII-18**

##### **ACCESSIBILITY OF BOARD-CERTIFIED PHARMACISTS FOR PATIENTS LIVING IN RURAL AREAS OF TEXAS**

Kaden D. Ridley, Krystal K. Haase, Eric J. MacLaughlin, Texas Tech University Health Sciences Center, Jerry H. Hodge School of Pharmacy, Amarillo, TX.

**PURPOSE:** Board-certified specialty pharmacist services improve patient care and can enhance care in rural areas. Previous reports describe geographical disparities in the general services provided by pharmacists. It is not known whether disparities exist in advanced practice roles such as comprehensive medication management. Geographic distribution of board-certified specialty pharmacists may provide insight into service accessibility. The purpose of this study is to characterize board-certified specialty pharmacists in respect to geographic location, including rural and non-rural areas of the state of Texas and relation to the demography of healthcare populations and access.

**METHODS:** Data were collected from the Board of Pharmacy Specialties (BPS) public record database and manually cross-referenced with the Texas State Board of Pharmacy (TSBP) website. Workplace zip codes for BPS pharmacists were then evaluated with the National Healthcare Quality and Disparities Report. Descriptive statistics were utilized as appropriate.

**RESULTS:** 3276 BPS pharmacists are registered in Texas, with approximately 50% being Pharmacotherapy specialists. Texas accounts for 7% of total BPS certifications in the U.S. Current TSBP records characterize 20,614 actively licensed pharmacists practicing within the state. Percentages with one or more BPS certifications will be presented in aggregate based on location and in proportion to population.

**CONCLUSION:** This study addresses a potentially significant issue regarding access to pharmacist-provided patient care and comprehensive medication management services.

#### **PL XIII-19**

##### **IMPACT OF A PHARMACIST-LED PROCALCITONIN PROTOCOL IN PATIENTS WITH SUSPECTED LOWER RESPIRATORY TRACT INFECTIONS**

Joy Nwoke, Paige Austin, Fangzheng Yuan. Baptist Hospitals of Southeast Texas, Beaumont, TX.

**PURPOSE:** Prolonged periods of antibiotic exposure can lead to the development of antibiotic resistance and additional burdens on healthcare systems and patients. Procalcitonin (PCT) is a serum biomarker that helps differentiate bacterial infections from other causes of infection or inflammation and has been used as a tool to decrease the duration of antibiotic therapy. The purpose of this study is to develop, implement, and validate a pharmacist-led procalcitonin protocol to optimize the utilization of PCT to guide antibiotic discontinuation in lower respiratory tract infections (LRTI).

**METHODS:** The institutional review board approved this pre-post study assessing the implementation of a pharmacist-led procalcitonin protocol at a community teaching hospital. Patients were included if they had a suspected bacterial LRTI such as chronic obstructive pulmonary disease exacerbation, pneumonia, or acute bronchitis, and antibiotics were initiated. Patients that were pregnant, immunocompromised (i.e., human

immunodeficiency virus, presence of neoplasms, and active tuberculosis), diagnosed with a concomitant bacterial infection at the time of antibiotic initiation, received vasopressors or experienced an acute kidney injury at any time during their hospital stay, were excluded. The control period was from October 1 - 28, 2021 followed by a 10-day wash out period. Procalcitonin was added to order sets on November 5, 2021. The intervention period was from November 8 – December 5, 2021, and pharmacists used Senti7 to intervene on patients with suspected LRTIs and a PCT level. The primary outcome was the duration of antibiotic therapy before and after implementation of the PCT protocol and will be evaluated using a student's t test. The secondary outcomes were hospital length of stay, intensive care unit admission during hospitalization, incidence of antibiotic re-initiation for the initial infection within 72 hours of antibiotic discontinuation, rate of clostridioides difficile infection prior to hospital discharge, and percentage of de-escalation interventions accepted. The estimated sample size expected is 30 patients over a 28-day data collection period for each group.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL XIII-20

##### AN ASSESSMENT OF CARDIOVASCULAR OUTCOMES IN HYPERTENSIVE PATIENTS THROUGH THE EVALUATION OF THE FRACTION OF TIME MAINTAINED WITHIN A GIVEN BLOOD PRESSURE RANGE

Maryam Yassa

**PURPOSE:** Many recommendations exist regarding blood pressure targets to reach and maintain with patients based on a variety of factors. Despite this, there remains conflicting evidence regarding intensification of antihypertensive therapy and the associated benefit in select patient populations.<sup>1,2</sup> The primary outcome of this study is to assess cardiovascular outcomes in hypertensive patients by analyzing the percent of time in which they are within a given blood pressure range, to evaluate if this correlates with an improvement in cardiovascular outcomes, and if so, which range this is. Cardiovascular outcomes include ischemic stroke, hemorrhagic stroke, and myocardial infarction. The secondary outcome is to assess if maintaining patients within a specific range for a given fraction of follow-up visits, as opposed to targeting a specific blood

pressure target, results in decreased hospital utilization.

**METHODS:** This is a retrospective study of hypertensive patients with or without established cardiovascular disease followed over a period of two years. Hypertension control in the outpatient setting will be assessed and any associated hospital admissions or emergency department (ED) visits. Data will be collected using Cerner Health Facts database, and ICD-10 codes will be used to obtain de-identified patient data.

**CONCLUSIONS:** This study may provide insight into the management of hypertension in patients that is different from the goal blood pressure range that has been targeted for years.

1-Carlos Saiz, Luis et al. Blood pressure targets for the treatment of people with hypertension and cardiovascular disease. *Cochrane Database Syst Rev*. 2020 Sep 9;9(9). Doi: 10.1002/14651858.CD010315.pub4.

2-Ghazi, Lama; Oparil, Suzanne. Impact of the SPRINT Trial on Hypertension Management. *Annual Review of Medicine*. 2018 Jan vol. 69:81-95.

#### XIV-A: Safety/Operations

##### PL XIV-1

##### INTRAVENOUS TO ORAL INTERCHANGE OPPORTUNITY AND DRUG SPEND ANALYSIS AT A LARGE COMMUNITY HOSPITAL

Kevin Chan, Michelle Yazdchi, Rincy Chacko, HCA Houston Healthcare Clear Lake, Webster, TX

**PURPOSE:** Intravenous (IV) medications are often expensive in comparison to oral (PO) equivalents in which dose conversion may result in cost savings. Real-time clinical surveillance technology (RTCST) tools are highly automated clinical systems used to improve patient safety, therapeutic efficacy, and reduce healthcare costs. The RTCST tool identifies real-time, actionable interventions for pharmacists using information within the electronic health record (EHR). The objective of this study is to determine the potential opportunities and cost savings for targeted list of IV-to-PO conversion practices at a large community hospital.

**METHODS:** This is a single center, retrospective, process improvement study exempt from oversight by

the Institutional Review Board. Opportunities for IV-to-PO conversion for target medications as identified by RTCST for patients at least 18 years old admitted to medical/surgical and critical care units between January 1, 2021 and March 31, 2021 were included. Data collected from the EHR was used to identify patients clinically eligible for IV-to-PO conversion per facility protocol. The primary endpoint is time assessment of IV-to-PO conversion. Secondary endpoints include analysis of median time to IV-to-PO conversion, clinical rationale for exclusion, and assessment for cost savings with IV-to-PO conversion.

**RESULTS:** A random sample of targeted medication IV-to-PO RTSCST alerts were collected (n=250). Within the sample, there were 212 (84.8%) alerts with true eligibility for IV-to-PO conversion per facility protocol. The primary outcome of median time from eligibility per facility protocol to IV-to-PO conversion was 48.4 hours. For the secondary outcome median time for time assessment of true eligibility met for IV-to-PO conversion per facility protocol was 24 hours. A chi-square test was performed to examine the relationship between time of true eligibility (met or not met) and class of medications (anti-infective vs. non-anti-infective) and was not statistically significant,  $X^2(1, n=250) = 0.57, p < 0.45$ . Further analysis with another chi-square test was performed to examine the relationship between eligible IV-to-PO conversion (converted or not converted) and class of medications (anti-infective vs. non-anti-infective) and was statistically significant,  $X^2(1, n=212) = 11.4, p < 0.05$ . Upon further evaluation, the realized cost savings for timely IV-to-PO conversion in a 3-month period was 9.36% based on the average wholesale price (AWP).

**CONCLUSION:** Potential opportunities for timely IV-to-PO conversion were observed based on time assessments. No difference was found between alert eligibility and class of medications. There was a significant difference between eligible IV-to-PO conversion and class of medications, possibly related to additional conversion criteria for anti-infective medications per facility protocol. Substantial cost savings opportunity was identified and warrants further review.

#### PL XIV-2 EVALUATION OF ARGATROBAN PRESCRIBING AND MONITORING PATTERNS AT AN ACADEMIC MEDICAL CENTER

Natasha Parker, Matthew Jirasek, Ihsan Muhsin, Charlotte Farris, Megan Roberts, Baylor Scott and White Medical Center, Temple, TX

**BACKGROUND:** Argatroban is a direct thrombin inhibitor that binds rapidly to the active site of thrombin to achieve anticoagulation. Currently, argatroban is FDA-approved for prophylaxis or treatment of thrombosis in patients with/at risk of heparin induced thrombocytopenia (HIT). Hospital staff have observed that argatroban is continued in some patients despite negative HIT immunoassays. Given its expense, extensive monitoring required (laboratory and staff costs), and risk of bleeding, appropriate use of argatroban is imperative.

**PURPOSE:** The purpose of this medication use evaluation is to determine the prescribing patterns of argatroban in terms of indication of use, as well as safety and efficacy outcomes.

**METHODS:** A retrospective chart review was completed using the hospital's electronic medical record. A convenience sample of 188 patients receiving argatroban from January 2017 and September 2021 was analyzed. Patients were excluded if they received less than 24 hours of argatroban. Data collected includes patient demographics, BMI, renal function, and presence of hepatic dysfunction. The primary outcome was indication of use and duration of use. Type of immunoassay tests used to rule out HIT and time to discontinuation of argatroban after negative HIT assays were collected as applicable. Secondary outcomes include incidence of major bleeding as defined by the International Society on Thrombosis and Haemostasis and new thrombosis. Additional information collected for exploratory analyses included argatroban starting doses, argatroban-initiating service/team, number of pharmacy consults to dose argatroban, length of stay, and in-hospital mortality. Descriptive statistics were used to analyze the data.

**RESULTS:** One-hundred fifty-five of 188 patients were included in the final analysis. The indications of use of argatroban included suspected HIT (135/155, 87.1%), heparin resistance (6/155, 3.9%), previously confirmed HIT (6/155, 3.9%), religious refusal to use heparin products (1/155, <1%), and other (7/155, 4.5%). In suspected HIT, an anti-platelet factor 4 and serotonin-release assay were available in 97.9% and 92.6% of the encounters, respectively. The average time to discontinuation of argatroban after negative

HIT assays was 3.8 ( $\pm 2.1$ ) days. Overall rate of major bleeding and venous thromboembolism on argatroban was 21.3% and 8.4%, respectively. Of note, exploratory analyses showed argatroban was continued 31.9% of the time despite negative HIT assays and pharmacy was consulted to dose argatroban in 27.1% of the encounters.

**CONCLUSION:** This study suggests a trend towards argatroban continuation despite negative HIT assays among specific provider teams. Education and implementation of new strategies with introduction of an institutional protocol can assist in the optimization of use of argatroban, especially in suspected HIT.

#### **PL XIV-3 EVALUATION OF CLINICAL INTERVENTIONS PROVIDED BY A SPECIALTY PHARMACY AND THE IMPACT ON PATIENT CARE**

Kiersi Harmon, Linda Chen, Tonya Martin, Ryan Thaliffdeen, Baylor Health Enterprises, Round Rock, TX.

**BACKGROUND:** Specialty medications have become one of the main areas of focus for drug development in recent years, representing over 40 percent of total drug revenue. Due to the high cost and complexity of these medications, they often require a higher level of care from the pharmacy staff. As the development of these drugs continues to grow, so too does the need to demonstrate the impact of quality care at the pharmacy level. Specialty pharmacy staff have a unique opportunity to aid in patients' care and have a large impact on their treatment success. In current practice, it has been difficult to identify this potential impact as there are no standardized measures to be utilized. There has been a recent national call to action to establish these standards in order to consistently demonstrate the value of specialty pharmacy clinicians in patient care.

**PURPOSE:** To evaluate the clinical interventions provided by the specialty staff at Baylor Scott and White Specialty Pharmacy. Also, to explore the potential impact these interventions have on patient care.

**METHODS:** This study was a single-center descriptive analysis evaluating patients receiving a specialty prescription that required a clinical intervention. Intervention cases were included if they were completed at the Baylor Scott and White

Specialty Pharmacy from December 2021 through February 2022. The intervention category, subtype, and actions taken to address the intervention were collected from the patient management system. The specialty medication, indication for therapy, and any noted outcomes of the intervention were also gathered. Categorization of interventions included adverse event, disease control, drug utilization, gap in therapy, patient inquiry, and "other." Interventions resulting in prescriber consultation were further evaluated for potential outcomes and impact on care.

**RESULTS:** Data collection and analysis in progress.

**CONCLUSIONS:** Conclusion to be presented following completion of pending results.

#### **PL XIV-4 ASSESSMENT OF LONGITUDINAL ADVANCED PHARMACY PRACTICE EXPERIENCE PROGRAMS IN PREPARING PHARMACY STUDENTS FOR RESIDENCY TRAINING.**

Blake M. Wassom, Kathleen A. Lusk, Jenna L. Snoga, Christina M. Long, University of the Incarnate Word Feik School of Pharmacy, San Antonio, TX.

**PURPOSE:** To determine whether new PGY-1 pharmacy residents feel more prepared for residency training after having completed a Longitudinal Advanced Pharmacy Practice Experience (LAPPE) program during pharmacy school as compared to those who did not complete a LAPPE program.

**METHODS:** This was a multicenter, two-arm, cross-sectional study. To be eligible, participants had to be PGY-1 pharmacy residents at an ASHP-accredited program or equivalent. The primary endpoint was feelings of preparedness. Secondary endpoints included motivations for LAPPE participation or nonparticipation; matching with a preferred residency program, defined as matching with a program ranked first, second, or third on the ASHP Rank Order List; and self-reported ability with respect to key indicators for success during early residency, including clinical knowledge and skills, commitment to self-improvement, communication skills, passion for patient care, professionalism, reliability, self-motivation, initiative, teamwork, time management, and work ethic. A survey was developed to obtain these data and then modified based on feedback provided during two focus group sessions. A link to the final version of the survey was sent via email to

residency program directors of all qualifying programs who then redistributed it to all PGY-1 residents in their respective programs.

**RESULTS:** The survey received more than 1,000 responses and 960 PGY-1 residents were included in the study. Four hundred sixty-one respondents (48%) indicated that LAPPE programs were offered as part of their pharmacy training and 180 (19%) reported prior participation in a LAPPE program. LAPPE participants reported increased preparedness for residency training (mean 6.18 vs 5.72 on a 7-point Likert scale, difference 0.46, 95% CI 0.309 to 0.618,  $p < 0.001$ ). LAPPE participation was also associated with greater self-reported clinical knowledge and skills (mean 5.18 vs 4.95, difference 0.23, 95% CI 0.093 to 0.372,  $p = 0.001$ ). Among respondents that were offered a LAPPE program, the most common motivation for participation was CV development whereas the most common motivation for nonparticipation was a preference for multiple sites. Matching with a preferred residency was common and similar between cohorts.

**CONCLUSION:** PGY-1 residents who had completed a LAPPE felt better prepared for residency than did those who had not completed a LAPPE. Prior LAPPE participation was associated with greater self-reported clinical knowledge and skills at the start of residency training.

#### PL XIV-5

##### IMPACT OF MEDICATION WARNING ACTIVE INTERVAL OPTIMIZATION ON CROSS ENCOUNTER DRUG-DRUG INTERACTIONS AT AN ACADEMIC MEDICAL CENTER

Brian Ortega, Charles Golding, Meet Patel, Sonia Mathews, Carlos Clark, Emmanuel Enwere, The University of Texas Medical Branch, Galveston, Tx

**PURPOSE:** To optimize drug-drug interaction (DDI) medication alerts within an academic medical center electronic health record (EHR) by implementing medication active intervals for specific high-risk medications within mixed encounter settings. The institutional “inpatient and outpatient” encounter setting captures drug-drug interaction (DDI) alerts for all active medication orders (inpatient encounter) and between all active prescription orders (outpatient encounter) from mixed encounter settings. The mixed encounter setting contributes to nuisance medication alerts, and these alerts have a 97.8% average override

rate from December 2020 to March 2021 by pharmacists and providers at the University of Texas Medical Branch.

**METHODS:** A quasi-experimental pre-post study was conducted, evaluating drug-drug interaction (DDI) alerts retrospectively (12/1/2020 to 03/31/2021) and prospectively (12/1/2021 to 03/31/2022). Our structured medication active interval intervention changed the default medication active interval time from 24 hours to 0 hours and altered DDI alert logic to only check for DDI’s involving medication active intervals greater than 0 hours. The medication active interval intervention only applied to mixed-encounter settings. Third-party vendor survey data, supported by institution specific drug utilization and medication warning data, identified high-risk medication records of interest. Approximately 300 high-risk medication records (representing 28 medications) had their active intervals elongated (>0 hours). The structured intervention was approved by our interdisciplinary Clinical Decision Support Governance Committee. The primary outcome was the percent change in acceptance rates per-100 alerts. Secondary outcomes included percent change in acceptance and override rates per-100 alerts of the high-risk medication records changed and for all medication alerts. Statistical analysis was conducted using Wilcoxon Rank Sum Test and descriptive statistics.

**RESULTS:** An interim 3-month post-intervention analysis was performed. The average post-intervention acceptance rate per-100 alerts increased by 37.48%. There was an overall decrease of 74.29% in total DDI medication alerts for the post-intervention compared to pre-intervention group for mixed encounter alerts. The top five medications in descending order that caused DDI medication alerts post-intervention were warfarin, apixaban, heparin, clopidogrel, and enoxaparin. On average, high-risk medication records with active intervals greater than 0 hours saw a 35.37% increase in acceptance rates per-100 alerts post-intervention. Additionally, high-risk medication records with active intervals greater than 0 hours saw a 0.55% decrease in override rates per-100 alerts post-intervention.

**CONCLUSION:** Based on the interim data analysis, the structured changes to medication active intervals for high-risk medications increased DDI alert acceptance rates per 100 alerts, decreased DDI alert override rates for clinicians, and decreased overall monthly DDI medication alerts fired.

**PL XIV-6**  
**SUGAMMADEX VERSUS NEOSTIGMINE PLUS GLYCOPYRROLATE: AN ANALYSIS OF PERIOPERATIVE EFFICIENCY.**

Tu Le, Justin E. Gonzalez, Mario E. Varela, Valley Baptist Medical Center in Brownsville, TX.

**PURPOSE:** Neostigmine, an anticholinesterase inhibitor, has been the standard of care in routine surgical practice to reverse neuromuscular blockade (NMB) since 1931. A newer agent, sugammadex, is a synthetic  $\gamma$ -cyclodextrin that encapsulates and reverses amino-steroidal neuromuscular blocking agents (NMBAs)-induced paralysis. Clinical trials have demonstrated a more rapid and complete reversal of NMB when compared to neostigmine/glycopyrrolate. Therefore, potentially translating to faster discharge from the OR and/or PACU, leading to increased cost-efficiency. However, there is conflicting evidence as to whether sugammadex improves operational efficiency. Thus the objective of this study is to evaluate if sugammadex facilitates faster discharge from the OR and/or PACU compared with the usual standard of care in the reversal of neuromuscular blockade at our institution.

**METHODS:** The study was a retrospective chart review of adult patients admitted for surgical procedures requiring NMBA reversal from June 1, 2019 to Dec 31, 2021. Patients who received cisatracurium, succinylcholine alone, and with CrCl <30 mL/min were excluded from the study. Patients were matched based on The American Society of Anesthesiologists (ASA) classification and surgery types and divided into two arms: sugammadex +/- neostigmine versus standard of care (neostigmine + glycopyrrolate). The primary outcome was time from procedure end to PACU exit. The secondary outcomes include time from procedure end to extubation, time from reversal agent administration to anesthesia end, time from reversal agent administration to OR exit, and time from reversal agent administration to extubation. Safety outcomes were the incidents of post-op nausea/vomiting and bradycardia within the first 24 hours postop.

**RESULTS:** Pending

**CONCLUSION:** Pending

**PL XIV-7**  
**IMPACT OF SPECIALTY PHARMACY COLLABORATION WITH RHEUMATOLOGY**

**CLINICS TO IMPROVE THE ACHIEVEMENT OF TREAT TO TARGET GOALS IN PATIENTS WITH RHEUMATOID ARTHRITIS**

Alexandra Ritenour, Anthony Yu, Diana Li, Tonya Martin, Baylor Scott & White Health, Temple, TX

**PURPOSE:** In rheumatoid arthritis (RA), the use of RAPID3 assessments to meet treat-to-target goals is endorsed by the 2021 ACR guidelines. In November 2020, the Baylor Scott & White Specialty Pharmacy implemented a new service that included more frequent collection of RAPID3 scores and standardized provider communication for patients co-managed by a Baylor Scott & White Rheumatology Clinic. The objective of this study was to evaluate the impact of this new service on RA disease activity.

**METHODS:** RA patients with a first fill date for a new biologic medication, referred to as the index date, from January 2020 through November 2020 were included in the pre-intervention group and patients with an index date from December 2020 through May 2021 were included in the post-intervention group. Before the new service started, patients were followed under a protocol of less frequent RAPID3 assessments that occurred every six months; once the service began, patients were followed using an algorithm in which patients with higher disease activity were contacted more frequently. All RAPID3 scores were collected from the specialty pharmacy's clinical tracking software. Descriptive statistics were performed.

**RESULTS:** 86% of patients in the pre-intervention group (n=7) compared with 100% of patients in the post-intervention group (n=10) had high/moderate disease activity at baseline. Within a 6-month follow-up period in both groups, the percentage of high/moderate disease activity patients decreased by 30% in the post-intervention group and remained the same in the pre-intervention group.

**CONCLUSION:** Disease activity scores improved in RA patients participating in more frequent collection of RAPID3 score and standardized provider communication by the specialty pharmacy, although this analysis is limited by the small sample size. These results support the positive impact increased specialty services may have on patient health outcomes. Furthermore, specialty pharmacies should consider continuing to expand and track outcomes of these initiatives.

## XIV-B: Emergency/Geriatric

### PL XIV-8

#### COMPARISON OF F(ab')<sub>2</sub> VERSUS FAB ANTIVENOM IN ADULT AND PEDIATRIC PIT VIPER ENVENOMATION.

Clayton Lambert, Mitchell Daley, Cynthia McCune, Dell Seton Medical Center at the University of Texas at Austin, Austin, TX.

**PURPOSE:** The unified treatment algorithm for the management of crotalidae snakebites recommends the use of crotalidae immune Fab antivenom (Fab-AV) for the treatment of pit viper envenomation. Recent literature supports the use of crotalidae immune F(ab')<sub>2</sub> antivenom [F(ab')<sub>2</sub>-AV] over Fab-AV based on reductions in late coagulopathy. These studies may lack evaluation of multiple relevant clinical and patient domains in regards to outcomes. The purpose of this study is to compare the total number of loading doses of Fab-antivenom (AV) to F(ab')<sub>2</sub>-AV administered while achieving control in patients being treated for pit viper envenomation.

**METHODS:** This is a retrospective, multicenter observational cohort study over a 6-year period from 2015 to 2021. The institutional review board (IRB) for the included institutions approved this study. All patients receiving at least 1 standard loading dose of antivenom were included. Patients that did not receive antivenom, did not suffer a snakebite, or had previously been bitten by a pit viper and received antivenom were excluded. The primary outcome of this study was the mean number of antivenom vials used per patient in achieving control of envenomation. Secondary outcomes include intensive care unit (ICU) length of stay, in-hospital length of stay, mean number of corrected antivenom vials, and anticoagulant outcomes.

**RESULTS:** Of the 238 patients who met inclusion criteria, median age was 34.5 years, 141/238 (59.2%) were male, median snakebite severity score was 3, 149/238 (63.1%) had suffered lower extremity bites, 86 (36.4%) had suffered upper extremity bites, the median bite-to-antivenom start time was 2.74 hours, with 123/238 (51.7%) of bites due to rattlesnakes, 52/238 (21.9%) due to copperheads, and 56/238 (23.53%) with an unidentified snake species.

The primary outcome of mean loading doses was 1.3 in the F(ab')<sub>2</sub>-AV and 1.78 in the Fab-AV group ( $p = 0.007$ ). Significant secondary outcomes include a reduced total number of corrected vials (5 vs 12,  $p < 0.0001$ ), reduced hospital length of stay (1.5 days vs 1.8 days,  $p = 0.006$ ), and lowest platelet count at 5 days (193.5 vs 172,  $p = 0.02$ ). A subgroup analysis among age groups <8 years, 8-14 years, and >14 years revealed a significant lowering in the F(ab')<sub>2</sub>-AV group (1.5 vs 2.84,  $p = 0.04$ ) with non-significant lowering in the 8-14 years group (1.67 vs 2.08,  $p = 0.51$ ) and >14 years group (1.25 vs 1.42,  $p = 0.272$ ).

**CONCLUSIONS:** There was a significantly lower requirement of loading doses in the F(ab')<sub>2</sub>-AV group in the combined adult and pediatric population, in addition to a reduced hospital length of stay and platelet count reduction.

### PL XIV-9

#### IMPLEMENTATION AND EVALUATION OF FIXED-DOSE FOUR-FACTOR PROTHROMBIN COMPLEX CONCENTRATE PROTOCOL FOR FACTOR Xa INHIBITOR REVERSAL IN INTRACRANIAL HEMORRHAGE

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**PURPOSE:** Factor Xa inhibitors are used for the treatment of venous thromboembolism and reduction of stroke risk in patients with atrial fibrillation. A serious complication with these medications is life-threatening bleeding, such as intracranial hemorrhage (ICH). Four-factor prothrombin complex concentrate (4F-PCC) has become the favored off-label reversal agent for these medications. Per the package insert, weight-based 4F-PCC dosing is used for these life-threatening complications, however a fixed-dose protocol was recently implemented at this institution. This study aims to assess the safety and efficacy of a fixed-dose 4F-PCC protocol in patients presenting with life-threatening factor Xa inhibitor-associated ICH compared to weight-based dosing.

**METHODS:** This is an IRB approved, retrospective cohort study conducted at a 900-bed Level II Trauma Center. This study evaluated the use of weight-based versus fixed-dose 4F-PCC for the reversal of factor Xa inhibitor-associated ICH from June 1, 2017, to June 30, 2021. Patients who received 4F-PCC at an outside hospital, received 4F-PCC for vitamin K antagonist-

associated ICH, or those who were pregnant were excluded. The primary endpoint assesses clinical resolution of hemorrhage within 24 hours, defined by no expansion of bleed on 24-hour repeat computerized tomography (CT) head scan. Secondary endpoints assessed include in-hospital mortality, intensive care unit (ICU) length of stay, rates of hematoma expansion after 24 hours, rates of thrombosis, cost-savings, CT scan to needle time, and number of supplemental 4F-PCC doses. Outcomes were analyzed using descriptive statistics, Chi-square test, and Student's t-test.

**RESULTS:** A total of 113 patients met inclusion criteria. The average patient in the weight-based group was a 76-year-old Caucasian male weighing 85.7 kg and was a 74-year-old Caucasian male weighing 82.0 kg in the fixed dose group. The mean 4F-PCC dose was 3921 units versus 2093 units in the weight-based group and the fixed-dose group, respectively. The median CT to needle time was 144 [72,336] and 123 [59, 196] minutes units in the weight-based group and the fixed-dose group, respectively. The primary outcome of rate of bleed expansion within 24 hours was significantly higher in the fixed dose group compared to the weight-based group [12 (32%) vs 11 (15%),  $p=0.026$ ]. Additionally, there was a significantly higher incidence of bleed expansion after the 24 hours in the fixed-dose group compared to the weight-based [11 (30%) vs 2 (3%),  $p < 0.001$ ]. There was no difference in rates of thrombosis or mortality between the two groups. The mean ICU and hospital length of stay in the weight-based group was 4.5 and 7.9 days and was 5.5 and 8.4 days in the fixed-dose group, respectively. Lastly, there was a significant mean cost difference of  $\$3,581 \pm 288.80$  (95% CI [3,009.10 – 4,153.64]) after switching from the weight-based regimen to the fixed-dose regimen.

**CONCLUSION:** This retrospective cohort study looking at solely patients presenting with a factor-Xa inhibitor-associated intracranial hemorrhage, shows a significant increased rate of bleed expansion with a fixed-dose of 4F-PCC compared to a weight-based dose of 4F-PCC, but there was no difference in mortality rates.

#### PL XIV-10

#### OPTIMIZING TREATMENT OF BETA-BLOCKER AND CALCIUM CHANNEL BLOCKER OVERDOSE IN THE EMERGENCY DEPARTMENT: A CASE SERIES AND REVIEW OF THE LITERATURE

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**PURPOSE:** Beta-blocker and calcium channel blocker toxicity can present as emergent situations in the emergency department making it imperative to have concise treatment guidelines and order set protocols available. While there are case studies available, there are few guidelines for treating these overdoses. The goal of this retrospective, descriptive study is to analyze treatment trends in the community hospital setting and optimize treatment for beta-blocker and calcium channel blocker overdose. A detailed order set will then be created for physician use leading to safer care with established protocols, precise instructions, ease of order entry, and pertinent labs already included.

**METHODS:** A literature review will be performed to describe treatment of beta-blocker and calcium channel blocker overdose. Data collected and summarized will include case studies, case series, and meta-analyses over beta-blocker and calcium channel blocker overdose treatments. Chart reviews will be performed meeting inclusion and exclusion criteria. These patients will be identified by using ICD-9 (971.3 and 972.9) and ICD-10 codes (T44.7X2A, T44.7X1A, T46.1X2A, T46.1X1A) from January 2010 to July 2021. Data will be collected to detail commonly used treatment strategies and the response to these therapies. Lastly, a case series will be written reviewing treatment trends and response for patients in the community hospital setting over the past eleven years. Using this internal data plus external literature review, an order set will be created for physicians to use in the future.

**RESULTS:** A total of 76 patients were identified with 19 patients eligible for inclusion based on inclusion/exclusion criteria. Treatments used for beta-blocker and calcium channel blocker toxicity varied by patient. Some patients received a variety of treatment interventions while others received monotherapy with one specific drug. Most all patients received activated charcoal if presenting within the appropriate time frame from ingestion. Other treatment varieties included atropine, calcium chloride or calcium gluconate, glucagon, and drips such as glucagon, norepinephrine, epinephrine, vasopressin, and dopamine. All of the patients were admitted to the intensive care unit for continuous monitoring of blood pressure and heart rate regardless of whether they had

medication drips running at the time. Of note, there was one patient where our emergency department clinical pharmacist appropriately dosed and created a protocol for euglycemic high dose insulin therapy; however, the patient improved and did not end up needing the high dose insulin drip. No patients received intravenous lipid emulsion therapy, methylene blue, or pacing. Of the 19 patients that were included in the study, all of them were eventually stable for discharge and no deaths occurred.

**CONCLUSION:** Treatment prescribing patterns varied for patients presenting to the emergency department with beta-blocker and calcium channel blocker toxicity. However, with no treatment protocol available, this was to be expected. All of the medications used were consistent with those found in other case studies. Creating an order set and protocol for the emergency department is currently underway and expected to be completed by June.

#### PL XIV-11

##### **EFFECT OF HAVING A PHARMACIST IN THE GERIATRIC EMERGENCY DEPARTMENT: IMPROVING HEALTH OUTCOMES IN THE GERIATRIC POPULATION**

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**PURPOSE:** According to the Population Reference Bureau, by 2060 nearly 25% of the US population will be 65 years of age or older. One study published in 2011 showed that 40% of geriatric patients took between 5 to 9 medications and 18% were taking 10 or more. Polypharmacy, or the regular use of at least five medications, places geriatric patients at an increased risk of adverse drug events and hospitalizations. The purpose of this study is to determine the effect that medication reconciliations and pharmacist interventions have on improving health outcomes.

**METHODS:** This will be a retrospective review of patients 65 years or older who were seen at Touro Infirmary in New Orleans, Louisiana. The review will include patients who presented to the Emergency Department between January 1, 2021 and March 31, 2021. Patients that will be included were seen between 0800 and 1800 from Monday through Friday, when pharmacy services were offered. Specifically, this study will look at the number of medication reconciliations and interventions completed by a pharmacist. This study will also evaluate the number

of patients that presented with high-risk medications, as defined by BEER's criteria. In addition, the study will look at the number of patients that had readmissions within 30 days of their ED visit. This data will then be compared to data on patients who presented to the Emergency Department between July 1, 2021 and September 20, 2021. During this time a pharmacist was only assigned to the emergency department from 13:00 to 17:00. The primary outcome of this trial will be the number of drug interventions made in the emergency department involving geriatric patients. Statistical analysis will be conducted utilizing a chi-square test.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

#### PL XIV-12

##### **ANTIPSYCHOTIC DOSING CHANGES AFTER INITIATION OF PSYCHOPHARMACOLOGIC INTERVENTIONS FOR BEHAVIORAL AND PSYCHOLOGICAL SYMPTOMS ASSOCIATED WITH DEMENTIA IN LONG-TERM CARE RESIDENTS.**

Julia Smith, Amie Blaszczyk, Monica Mathys. Texas Tech University Health Sciences Center, Dallas, TX.

**PURPOSE:** Behavioral and psychological symptoms of dementia (BPSD) are highly prevalent and burdensome for patients with varying dementia diagnoses and their care partners in the long-term care (LTC) setting. Several nonpharmacologic and pharmacologic interventions have been studied for BPSD and have varying levels of support. Medications which have been studied for BPSD include antidepressants, mood-stabilizers, anxiolytics, and antipsychotics. All use of antipsychotics for BPSD are considered off-label and have limited, low-quality evidence supporting their use. The increased risk of death in this specific population is also problematic with the use of antipsychotics. Despite regulatory requirements to ensure patients receiving antipsychotic medications in LTC receive proper monitoring and periodic attempts to taper and discontinue, inappropriate antipsychotic use in the therapy of BPSD is still a widely prevalent and potentially dangerous issue. It is necessary to investigate what medications can prevent the initiation of an antipsychotic for BPSD as well as what medications can make decreasing the dose or discontinuation of an antipsychotic successful. Therefore, the purpose of this study was to determine

who has had a beneficial response to initiation alternative psychopharmacologic agents resulting in a decreased utilization of antipsychotics for maintenance management of BPSD.

**METHODS:** The study was a retrospective cohort study of all residents with a dementia diagnosis receiving an antipsychotic within a for-profit LTC chain. Included individuals were those aged 60-105 with a diagnosis of dementia on an antipsychotic from 6/30/10 – 6/30/21. The primary objective of this study was to evaluate the prevalence of antipsychotic discontinuation 6 months after additional psychopharmacologic intervention for the treatment of BPSD. Secondary outcomes included assessment of the primary outcome of antipsychotic discontinuation at 1,3, 9, and 12 months. Lastly, progress notes were analyzed during the study period for documentation of side effects and of specific psychopharmacologic medication was correlated with antipsychotic discontinuation. This study was reviewed and approved by the Texas Tech University Health Sciences Center Institutional Review Board

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

#### PL XIV-13

##### **SAFETY AND EFFICACY OF ORAL ANTI-MRSA ANTIBIOTICS FOR SKIN AND SOFT TISSUE INFECTIONS IN GERIATRIC VETERANS DISCHARGED FROM THE EMERGENCY DEPARTMENT.**

Hannah Doles, Peter Calkins, Christina Tran, Kalin Clifford, Kevin Kelly, VA North Texas Health Care System, Dallas, Texas.

**PURPOSE:** Adverse events associated with the use of sulfamethoxazole-trimethoprim (SMX-TMP) have been well documented in previous literature. These primarily include hyperkalemia and acute kidney injury, and have been associated with several risk factors such as older age and concomitant use of certain medications such as potassium sparing diuretics. Although previous studies have evaluated the risk of adverse events associated with SMX-TMP in several settings and indications, more research is needed to determine the safest and most efficacious

oral agent in the treatment of suspected methicillin-resistant *Staphylococcus aureus* (MRSA) skin and soft tissue infections (SSTIs) in geriatric patients discharged from the emergency department (ED). The rate of repeat ED visits in this patient population either due to an antibiotic adverse event or treatment failure has not previously been elucidated. Although SMX-TMP may be a preferred agent for suspected MRSA SSTIs due to higher rates of susceptibility per local antibiogram, other agents may be associated with fewer adverse events without an increased risk of treatment failure. The purpose of the study is to evaluate the safety and efficacy of oral antibiotics with activity against MRSA for the treatment of SSTIs in geriatric patients discharged from the emergency department.

**METHODS:** In this single-center, retrospective study, patients who presented to the facility's emergency department within the study time frame were included if they were 65 years of age or older, diagnosed with a SSTI as identified by International Classification of Diseases (ICD) codes, and discharged from the ED with an oral antibiotic with activity against MRSA (SMX-TMP, clindamycin, tetracycline, doxycycline, minocycline, or linezolid). Patients were excluded from the study if they were receiving renal replacement therapy, admitted or transferred to a higher level of care, were pregnant, had an acute kidney injury upon initial presentation, or did not have labs within 24 hours of ED visit. Patients were also excluded if they were prescribed more than one of the following at the index visit: SMX-TMP, clindamycin, tetracycline, doxycycline, minocycline, or linezolid. The primary outcome was the incidence of repeat ED visits due to antibiotic related adverse effects within 30 days of antibiotic initiation. Secondary outcomes include the incidence of hyperkalemia, incidence of acute kidney injury, repeat ED visits due to antibiotic treatment failure within 30 days of antibiotic initiation, and hospital admission due to antibiotic adverse effects or treatment failure within 30 days of antibiotic initiation.

**RESULTS:** Research in progress.

**CONCLUSION:** Research in progress.

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