2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Breaking Free: A Retrospective Evaluation of Breakthrough Antiemetic Use on Hematopoietic Stem Cell Transplanation

Author: Marvin Agyeben

Primary Preceptor: Jane Kosirog-Glowacki

Institution: Advocate Lutheran General Hospital

Abstract:

More than half of hematopoietic stem cell transplant (HSCT) patients experience chemotherapy induced nausea and/or vomiting. Prophylactic antimicrobials, opioid analgesics and mucositis among other factors can further contribute to nausea and/or vomiting (N/V). Patients may still experience N/V (breakthrough, delayed, refractory) throughout their hospital stay which may last several weeks. The National Comprehensive Cancer Network 2023 guideline outlines antiemetic strategies for prevention and management of N/V based on emetogenic potential.

Purpose: To evaluate antiemetic use in HSCT patients during the transplant admission and analyze identified trends.

A retrospective review was performed at Advocate Lutheran General Hospital in adult autologous and allogeneic HSCT patients from March 2020 through August 2022. Eligible patient charts were accessed using the electronic medical record. Data pertinent to this study (antiemetic use, trends, frequency and causes of N/V, etc.) were collected and stored in a password protected document.

Results: Pending

Conclusion: Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Factors Contributing to Uncontrolled Hypertension in an Underserved Patient Population

Author: Sara Al Azmeh

Primary Preceptor: Bridget Dolan

Institution: Northwestern Memorial Hospital

Abstract:

Background: The prevalence of hypertension in the United States is high with 116 million adults with high blood pressure. Hypertension is more common in non-Hispanic black adults. Only 1 in 4 adults have their hypertension under control. A recent study conducted at Northwestern Medicine (NM) identified disparities related to hypertension care in patients who identified as black and who were receiving care at the outpatient clinics at NM.

Purpose: To assess factors contributing to uncontrolled hypertension by utilizing identified disparities related to hypertension care at Northwestern Medicine (NM). The information collected from this project will guide the care offered at the newly created pharmacist-led hypertension management clinic. This clinic will focus on addressing the disparities related to blood pressure control.

Methods: This is a quality improvement project that will take place at the Central Campus, Primary Care Clinics of NM. The project cohort includes black patients with hypertension who were seen in the primary care clinics between September 2021 to September 2022. The two comparator groups will include black patients with controlled hypertension and black patients with uncontrolled hypertension. The outcome measure will be blood pressure control based on NM Hypertension Measures. The process measures will be average number of follow-up appointments since diagnosis; percentage of patients with BMI > 30 offered weight loss medication, dietician consultation, or referral to lifestyle modification program; percentage of smokers offered smoking cessation program referral or nicotine replacement therapy; percentage of patients with MyChart access; and percentage of patients with access to mental health resources.

Key Takeaways: NM recognizes disparities in hypertension control. This project will identify factors contributing to uncontrolled hypertension and potential pharmacy led interventions to improve patient outcomes relating to hypertension control.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Impact of Concurrent Pharmacist Review and Intervention on CMS SEP-1 Core Measure Compliance in the Emergency Department

Author: Shin Allison

Primary Preceptor: Kristine Valenti

Institution: HSHS St. John's Hospital - Hospital Sisters Health System

Abstract:

Title: Impact of Concurrent Pharmacist Review and Intervention on CMS SEP-1 Core Measure Compliance in the Emergency Department

Primary Investigator: Shin Allison, PharmD

Co-Investigators: Kristine Valenti, PharmD, BCPS; Alexis Kasniunas, PharmD, BCCCP; Alina Viteri, PharmD

Performance Site: HSHS St. John’s Hospital, Springfield IL

Purpose: Sepsis is a medical emergency with studies showing an increase in mortality with delays in antibiotic administration. Due to high mortality rates, emergent need for intervention, and the lack of literature, a study assessing pharmacist impact on the SEP-1 core measures compliance is needed.

Methods: This is a retrospective, cohort, single center study of adults presenting to the emergency department (ED) with severe sepsis (SS) according to CMS SEP-1 criteria and discharged between October 1, 2021 – January 31, 2022 (pre-intervention group) and October 1, 2022 – January 31, 2023 (post-intervention group). The study population was identified utilizing a report from the electronic health record of ED patients with sepsis ICD 10 codes. Patients with a positive COVID-19 test or transferred from an outlying facility were excluded. The study intervention implemented in August of 2022 included an ED pharmacist real time audit of SS patients to guide treatment recommendations. The primary outcome for this study is the percent difference in CMS SEP-1 adherence between pre- and post-intervention. Secondary outcomes for this study include mortality, intensive care unit and hospital length of stay, time from sepsis identification to antibiotic administration, appropriate broad-spectrum IV antibiotic used if source of infection identified, number and type of pharmacist interventions. Descriptive statistics including mean, median, and percentages will be used to evaluate baseline characteristics and outcomes. Student’s t-test will be used to analyze continuous data. Statistical significance will be defined as $p < 0.05$.

Results: Preliminary results include a 21% difference in adherence to CMS SEP-1 favoring the pre-intervention group. The interventions made most by pharmacists in the ED include recommending repeat lactate levels and antibiotic selection.

Conclusion: Pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Doxycycline adherence for the management of Chlamydia trachomatis coinfection after implementing the 2021 CDC Treatment Guidelines for Gonococcal Infections

Author: Amanda Apato

Primary Preceptor: Giles Slocum

Institution: Rush University Medical Center

Abstract:

Background:

The updated 2021 CDC treatment guidelines recommend a single dose of ceftriaxone for Neisseria gonorrhea and oral doxycycline for 7 days for Chlamydia trachomatis coinfection. However, there is a significant public health concern regarding patient nonadherence to the 7-day course of doxycycline without any studies assessing this adherence. Therefore, the objective of this study was to evaluate patient's adherence to doxycycline for Chlamydia trachomatis infections after discharge from the Emergency Department (ED).

Methods:

This was an IRB-approved, single-center, retrospective cohort study evaluating the adherence to doxycycline for Chlamydia trachomatis infections. Patients were included if they received treatment and were discharged from the ED with an electronic prescription for doxycycline between May 2021 and September 2022. Patients were excluded if they are less than 18 years of age, pregnant, a sexual assault victim, or admitted inpatient. The primary outcome was the incidence of doxycycline prescription fill and pick-up after discharge from the ED. The secondary outcome was the incidence of repeat ED visits for the same chief complaint within 28 days. Descriptive statistics were computed for all study variables and Chi-squared or Fisher's Exact test, as appropriate, were used to assess the primary and secondary outcomes.

Results/Conclusion: pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of glycemic control with continuous glucose monitoring vs. traditional blood glucose monitoring in patients with type 2 diabetes mellitus managed by ambulatory care pharmacists

Author: Crissel Marie Arban

Primary Preceptor: Carol Chan

Institution: Franciscan Health Dyer

Abstract:

Purpose:

Continuous glucose monitoring (CGM) systems, as compared to traditional blood glucose monitoring (BGM), allow for closer monitoring of a patient's glycemic control through intermittent or real-time transmission of glucose data to a receiver or compatible device. With the increased data collection CGM offers, patients may experience improved quality of life and decreased glycemic variability, thereby avoiding poor outcomes associated with uncontrolled blood glucose. Ambulatory care pharmacists are at the forefront of CGM management. The purpose of this study was to determine the impact of CGM use on glycemic control and examine pharmacological interventions made by pharmacists.

Methods:

This Institutional Review Board approved multi-site-retrospective chart review evaluated adult patients with type 2 diabetes mellitus managed in pharmacist-run clinics between October 1, 2021 and March 31, 2022. Electronic medical records were used to identify patients that were actively using CGM for at least 3 months or using traditional BGM during the study period. Data was collected to include patient characteristics, glycemic control, and pharmacological interventions. CGM reports were reviewed using LibreView and Dexcom Clarity. The primary endpoint examined in this study was the change in hemoglobin A1C from initial to follow-up A1C(s). An unpaired t-test was used to determine significance for the primary endpoint. Secondary endpoints included the change in average blood glucose from initial to follow-up visit(s) and the average number of pharmacological interventions per visit.

Results:

Pending

Conclusion:

Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Optimization of Automatic Dispensing Cabinets (ADCs) at a Community Health System

Author: Elaine Augustine

Primary Preceptor: Joycemon Lukose

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

Automated dispensing cabinets (ADCs) are medication cabinets used in healthcare settings that allow medications to be stored and dispensed in patient care units. They are useful in controlling and tracking medication distribution. Information on medication stock within the ADC can be retrieved to help improve dispensing metrics. Two such metrics include the percent stock-out, which determines how many times a medication was out-of-stock, and vend-to-fill ratio which compares the number of times a medication was dispensed to the number of times it was refilled. The purpose of this initiative is to optimize ADCs to improve technician efficiency, decrease ADC refills and minimize stock outs within a multi-centered community health system.

Methods:

This is a quality improvement initiative that did not require investigational review board approval. The project optimizes ADC utilization by aiming for a percent stock-out goal of less than 0.5% and a vend-to-fill ratio goal greater than 12. The baseline percent stock-out and vend-to-fill ratio for each hospital over three months within the health system was collected and the hospital with the most room for improvement was selected as the pilot hospital site. The percent stock-out and vend-to-fill ratio data were further analyzed for each of the ADCs on medical-surgical floors. Procedural and emergency areas were excluded because the inventory in those locations could not be adjusted for safety reasons. A total of 5 ADCs were identified. For the ADCs with percent stock-outs and vend-to-fill ratios not within goal, the data was analyzed at the medication level. The par levels for all medications not within the goal range were adjusted based on the number of dispenses and the number of refills to improve the data. The changes were implemented, and the post-implementation data was collected 4 weeks later to measure optimization.

Results:

(Pending)

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Effect of Levetiracetam Prophylaxis on Seizure Incidence in Aneurysmal Subarachnoid Hemorrhage

Author: Nilmarie Ayala-Fontanez

Primary Preceptor: Veronica Bonderski

Institution: University of Chicago Medicine

Abstract:

The optimal seizure prophylaxis regimen after aneurysmal subarachnoid hemorrhage (aSAH) is not well defined. Within our institution, levetiracetam is the preferred agent for prophylaxis, but the dose and duration is variable. The purpose of this study was to compare the incidence of seizures in patients with aSAH who received levetiracetam prophylaxis to those who did not. This was a retrospective, observational, single-center evaluation of adult patients admitted for new aSAH. The primary outcome was the incidence of seizure in patients who did and did not receive prophylaxis from aneurysm repair to discharge. Secondary outcomes were number of patients discharged on antiepileptic drugs (AEDs), number of AEDs on discharge, and patient disposition. Exclusion criteria included traumatic subarachnoid hemorrhage, seizures before aneurysm repair, and AED used prior to admission. Nominal variables were assessed using the Chi-squared or Fisher's exact test. Continuous variables were assessed using the Student's t-test or Wilcoxon rank sum test. A p-value ≤ 0.05 was considered significant. Forty-five patients were included in the final analysis. Thirty-eight patients received levetiracetam prophylaxis (38/45; 84%). The most common dose was 500 mg every 12 hours (22/38; 58%). The median duration of levetiracetam prophylaxis was 7 days after aneurysm repair. Two patients in the prophylaxis group and 0 patients in the no prophylaxis group had a seizure (p=1.00). Six patients in the prophylaxis group and 0 patients in the no prophylaxis group were discharged on an AED (p= 0.5). The most common discharge disposition was home (26/45; 58%). There was no difference in the number of discharges home between groups (55% vs. 71%; p=1.00). There was no difference in seizures incidence, discharges on an AED, or discharge disposition between groups.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of standardized operating procedures for nonsterile compounding utilizing the revised United States Pharmacopeia (USP) General Chapter <795> Pharmaceutical Compounding – Nonsterile Preparations

Author: Paulina Bakalina

Primary Preceptor: Karen Kelly

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

The United States Pharmacopeia (USP) General Chapter <795> describes the minimum standards for nonsterile compounding and how to minimize harm through microbial contamination prevention and standardizing variability in practice. Effective November 1, 2023, the USP recently published the revised General Chapter <795> Pharmaceutical Compounding – Nonsterile Preparations with updates to personnel training and evaluation, cleaning of nonsterile compounding areas, and documentation. The purpose of this quality improvement project was to create uniform operations across a four-hospital health system for nonsterile compounding and to implement the revisions of USP General Chapter <795> Pharmaceutical Compounding – Nonsterile Preparations into the standardized operating procedures.

Methods:

A gap analysis was performed by reviewing and comparing the institutions' current policy for nonsterile compounding to the revised USP General Chapter <795> Pharmaceutical Compounding – Nonsterile Preparations. In addition to policy differences, inconsistencies in cleaning nonsterile compounding areas and variability in training were found among the four hospitals. Changes made to standardize cleaning of the compounding areas included the introduction of a cleaning log sheet with location-dependent minimum cleaning frequency requirements to be filled out by compounding staff and trained environmental services. A nonsterile compounding practical assessment was created to train personnel with two of the most commonly compounded products across the four hospitals. Updates to the existing written assessment were also implemented. All revisions are reflected in the newly created standardized operating procedures at the four hospitals. Compliance with these revisions will be measured by documenting the proportion of personnel who complete the written and practical assessments and by monthly monitoring of the cleaning log sheet in non-sterile compounding areas. This quality improvement project is exempt from review by the Institutional Review Board.

Results and Conclusion: Currently in process and will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating Safety Outcomes of the Health System Vancomycin Kinetics Monitoring Protocol in a Veteran Population

Author: Josiah Baker

Primary Preceptor: Kourtney Fermanich

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Abstract (maximum 300 words)

Background:

Vancomycin is a widely prescribed antibiotic in hospitalized veterans at the Edward Hines, Jr. VA Hospital. For many decades, therapeutic drug monitoring for intravenous vancomycin has been conducted by targeting goal trough concentration levels to achieve clinical cure and minimize risk of kidney injury. Drawing on years of pharmacokinetic and pharmacodynamic research, more recent guidelines published by IDSA in 2020 recommend monitoring the ratio of the area under the concentration-time curve (AUC) to the minimum inhibitory concentration (MIC).

AUC dosing goals are utilized to rapidly achieve and maintain vancomycin concentrations above MIC while minimizing toxicities associated with prolonged exposure. Many health systems have adopted these updated recommendations and have created AUC-dosing protocols for monitoring vancomycin. At the Edward Hines, Jr. VA Hospital, the current vancomycin kinetics monitoring protocol recommends AUC monitoring or traditional trough concentration monitoring based on the type of infection being treated.

Purpose:

This quality improvement project is designed to evaluate compliance with the current health system protocol for vancomycin kinetic monitoring, and the incidence of acute kidney injury (AKI) associated with use of the current kinetics monitoring protocol compared to the traditional trough monitoring method.

Methods:

A list of patients prescribed parenteral vancomycin therapy between 10/01/2021 to 10/31/2022 was generated from the electronic medical record, and 1,015 charts were reviewed in this study. For each chart meeting eligibility criteria, the following data points were collected and evaluated: Age, biological sex, race, height, weight, body mass index, baseline serum creatinine, baseline estimated glomerular filtration rate, prescribed vancomycin regimen (loading dose, maintenance dose/schedule), indication for vancomycin use, vancomycin serum concentration levels (peak/trough), calculated AUC, concomitant

nephrotoxic antimicrobials, kinetics monitoring method used, deviation from kinetics monitoring protocol, and incidence of AKI. The principal, co-investigators, and statistician will analyze the data using descriptive statistics.

Results/Conclusion:

Pending completion of the study.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Assessing Protocol Compliance for Inpatient Initiation of Sodium Glucose Co-Transporter 2 Inhibitors

Author: Abigail Baniel

Primary Preceptor: Bianca Long-Fazio

Institution: Northwestern Memorial Hospital

Abstract:

Sodium-Glucose Co-Transport 2 (SGLT-2) inhibitors are first-line agents for the management of type 2 diabetes mellitus due to their ability to lower A1c and improve outcomes for patients with atherosclerotic cardiovascular disease and chronic kidney disease. Dapagliflozin and empagliflozin have been found to reduce composite hospitalizations and cardiovascular mortality in patients with heart failure with reduced ejection fraction (HFrEF) regardless of type 2 diabetes mellitus. While key landmark trials for SGLT-2 inhibitors assess ambulatory HFrEF population, empagliflozin demonstrated clinical benefit in patients hospitalized for acute decompensated heart failure. Use of SGLT-2 inhibitors has increased in the inpatient setting given the 2022 ACC/AHA Heart failure guidelines recommendations.

Despite the known benefits of SGLT-2 inhibitors in heart failure, there are few studies investigating safety outcomes associated with their use in the inpatient setting. Euglycemic diabetic ketoacidosis (euDKA) has been reported with use of SGLT-2 inhibitors. Hospitalized patients are at an increased risk for development of euDKA due to poor oral intake, nausea and vomiting, and dehydration. The purpose of this study is to determine the safety of initiating SGLT-2 inhibitors in hospitalized patients by assessing provider adherence to an inpatient protocol.

This will be a single-center retrospective study of patients who were initiated on dapagliflozin or empagliflozin during their hospitalization at Northwestern Memorial Hospital (NMH). Patients >18 years old who were initiated on dapagliflozin or empagliflozin from January 2021 to October 2022 with a confirmed diagnosis of heart failure with EF <40% will be included in this study. The primary outcome will be rate of adherence (as a percentage) to the NMH protocol. This protocol recommends providers to consider several elements to safely initiate SGLT-2 inhibitors. Secondary outcomes include rate of SGLT-2 inhibitor related adverse events, length of admission, admission to an intensive care unit, and rate of discontinuation of SGLT-2 inhibitors.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the Incidence of Hypoglycemia Amongst Diabetic Ketoacidosis (DKA) Patients with Obesity Receiving Weight-Based Insulin Infusions

Author: Abdurahman Barakat

Primary Preceptor: Patrick Costello

Institution: University of Chicago Medicine

Abstract:

Diabetic ketoacidosis (DKA) is a serious and life-threatening complication of uncontrolled diabetes. The American Diabetes Association (ADA) recommends the use of a continuous intravenous insulin infusion to reverse the overall disease process. The main complication is hypoglycemia, which has been shown in some studies to occur in up to 5% of patients. There is currently no recommended maximum or insulin rate-correction in patients with obesity (body mass index (BMI) ≥30), leading to administration of large insulin doses, insulin receptor saturation, and increased risk of hypoglycemia. This study evaluates the incidence of hypoglycemia associated with weight-based continuous insulin infusions for the treatment of DKA in patients with obesity.

This study is a single-center, retrospective cohort study conducted at the University of Chicago Medical Center. Patients were included if they were admitted to the adult intensive care units or emergency department for DKA and received a continuous insulin infusion. Obese patients with DKA (BMI ≥30) were compared to those without obesity (BMI <30). The primary outcome was the occurrence of hypoglycemia during continuous insulin infusion.

The analysis included 240 DKA patient encounters, 120 were patients with obesity and 120 were patients without obesity. Hypoglycemia (blood glucose <70) occurred significantly more often in the non-obese group (20.8% vs. 5%, $p < .001$). The obese group was also associated with a significantly higher rate of anion gap re-opening, greater amount of insulin received, and longer hospital length of stay.

Obese patients received higher doses of insulin, but experienced fewer episodes of hypoglycemia. However, patients in the obese group also experienced a higher rate of anion gap re-opening and a longer hospital length of stay. Higher initial insulin infusion rates are likely safe and effective in patients with obesity, but the transition from intravenous to subcutaneous insulin may need to be evaluated in future studies.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Code Cart Streamlining's Effect on Cardiac Arrest

Author: Kevin Blake

Primary Preceptor: Kendall Mores

Institution: Northwestern Memorial Hospital

Abstract:

Objective: To determine whether a change in mobile crash cart model impacted time to appropriate intervention and patient outcome in cardiac arrest code activation. This will inform on the efficacy and safety of the change, as well as guide possible changes to improve patient outcomes and cost savings. Design: Observational quality analysis comparing patients in two 8-month periods, before and after the practice change. Setting: Large tertiary academic medical center Population: Adult (age ≥18 years) patients who had a cardiac arrest code activation in an inpatient unit during 8 month periods pre- and post-implementation. Activations in procedural areas, the emergency department, and a cardiothoracic intensive care unit were excluded based on site-specific confounders. Practice Change: A novel crash cart model was implemented to prioritize initiation of high-quality chest compressions over locating a crash cart and reduce costs compared to the standard crash cart model. The new model involved replacing traditional carts with backpacks containing advanced cardiovascular life support (ACLS) algorithm-recommended medications that are transported to cardiac arrest code activations by a designated pharmacist. This is enabled by our institution's ability to support pharmacist code response 24/7. A small supply of medications recommended within the first few minutes of a cardiac arrest (e.g., epinephrine) are stored with the defibrillator on each unit to promote timely care until the pharmacist responds with the mobile medication bag.

Outcome Measures: The primary outcome will be time to appropriate intervention per the ACLS algorithm during cardiac arrest. This will be defined as defibrillation for ventricular fibrillation and pulseless ventricular tachycardia and epinephrine for pulseless electrical activity and asystole, based on first rhythm check. The secondary outcomes will be the final patient outcome (death, return of spontaneous circulation, etc.), duration of codes, time to first and second medication administered, and amount of each medication administered.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Standardization of Pharmacist-Managed Protocols in a Health System

Author: William Blake

Primary Preceptor: Carol Heunisch

Institution: NorthShore University HealthSystem

Abstract:

Primary Author: William Blake, PharmD

Secondary Author: Carol Heunisch, PharmD, BCPS, BCCP

Title: Standardization of Pharmacist-Managed Protocols in a Health System

Purpose:

The collaboration between pharmacists and physicians has expanded significantly within healthcare. This partnership has allowed pharmacists to leverage their extensive knowledge of medications and contribute to patient care through recommendations made with the multidisciplinary team. In addition, many organizations have pharmacist-managed protocols that are approved by the Pharmacy and Therapeutics (P&T) Committee and provide pharmacist autonomy for adjustments to medication doses and frequencies, conversion of intravenous medications to oral (IV to PO), interchange therapeutically equivalent medications, and order vaccinations. These pharmacist-managed protocols promote safe patient care, drug cost savings, reduce medication errors and adverse events, and advance pharmacist clinical practice. In a community-based health system with recent merger acquisitions, pharmacist-managed protocols existed but were different between entities. This project focused on identifying differences between existing protocols and opportunities for standardization across the health system.

Methods:

This quality improvement project is exempt from Institutional Review Board approval. The primary objective is to standardize four pharmacist-managed protocols across the health system. These protocols include renal dosing adjustments, therapeutic interchange, IV to PO, and ordering of pneumonia vaccines. A gap analysis using comparative tables was conducted to identify differences between protocols and to target areas that will benefit from standardization. Once opportunities were identified, stakeholders were engaged in discussion to determine the feasibility of the protocol alignment. The proposed modifications were presented to the P&T Committees at each entity for review and approval. Once approved, updates were made into protocols housed on the health system's intranet site as well as to the electronic health record, and communication was disseminated to the pharmacy staff to inform of changes.

Results: Pending

Conclusions: Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the Appropriateness of Antibiotic Prescribing in a Cardio-Thoracic Intensive Care Unit (CTICU)

Author: Virginia Bland

Primary Preceptor: Chris Leong

Institution: Northwestern Memorial Hospital

Abstract:

Prophylactic antibiotics are used to prevent surgical site infections associated with cardiac surgery. The Society of Thoracic Surgeons and Surgical Care Improvement Project recommend discontinuing prophylactic antibiotics within 48 hours after cardiac surgery, even if tubes and drains remain in place. Despite this guidance, antibiotics are often continued or restarted erroneously in patients without an infectious indication. The study purpose is to determine the frequency of inappropriate antibiotic prescribing, specifically related to duration of therapy.

This is a retrospective, single-center chart review study from April 1, 2018 to March 31, 2020 with 100-150 patients of at least 18 years of age who were prescribed antibiotics during CTICU admission. All solid organ transplant patients will be excluded. At the study site, post-cardiac surgery patients receive cefazolin 2 grams every 8 hours for 5 doses and vancomycin 1 gram every 12 hours for 3 doses, with adjustments for renal function per hospital protocol. If patients have a severe beta-lactam allergy, aztreonam 1 gram every 8 hours for 5 doses is substituted for cefazolin. The primary outcome is total days of antibiotics beyond 48 hours post-cardiac surgery. The secondary outcome is total days of antibiotics used longer than recommended for the suspected infection. The primary safety outcome is incidence of Clostridioides difficile infection within 90 days of starting antibiotic therapy. Data will be collected through manual chart review and Enterprise Data Warehouse (EDW). Baseline characteristics will be analyzed with descriptive statistics. Primary and secondary outcome data will be analyzed with t-tests. Chi-square tests will be used to analyze safety outcome data.

Results and conclusions are forthcoming after data collection and analysis has concluded. Study limitations include single center and single unit study, small sample size, and retrospective nature.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Enoxaparin Prophylactic Doses in Neonatal and Pediatric Patients

Author: Taylor Boorn

Primary Preceptor: Karen Caylor

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Enoxaparin is a low molecular weight heparin that is commonly used for venous thromboembolism (VTE) treatment and prophylaxis. Use of prophylactic enoxaparin has increased in hospitalized pediatric patients due to serious harm events from preventable hospital-acquired VTEs. Pediatric prophylactic enoxaparin dosing, per CHEST guidelines, recommends 0.75 mg/kg/dose twice daily if less than 2 months old and 0.5 mg/kg/dose twice daily in patients 2 months and older. Anti-Xa monitoring is recommended to assess efficacy of prophylactic dosing as pediatric patients have lower levels of antithrombin, higher volume of distribution, and increased drug clearance when compared to adults. CHEST guidelines recommend targeting an anti-Xa level of 0.1 to 0.3 units/mL, but additional studies have targeted 0.2-0.5 units/mL. The primary objective is to evaluate prophylactic enoxaparin doses in neonatal and pediatric patients that achieved a target anti-Xa level.

Methods: This study is a retrospective review of pediatric patients who received prophylactic enoxaparin at Advocate Children's Hospital – Park Ridge from January 2015 to October 2022. The primary endpoint is to evaluate prophylactic enoxaparin doses in pediatric patients that achieved a target anti-Xa level of 0.1-0.4 units/mL. Secondary endpoints include evaluation of prophylactic enoxaparin doses in adolescents that achieved a target anti-Xa level, percent change from initial to final prophylactic dose that achieved the target anti-Xa level, and thrombus formation on prophylactic enoxaparin.

Results and Conclusion: Statistical analysis is still in progress but will be presented upon completion at the Illinois Pharmacy Resident Conference in May 2023.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparing Anaerobic and Aerobic Regimens in Aspiration Pneumonia

Author: Yarely Bueno

Primary Preceptor: Timothy Murrey

Institution: OSF Saint Anthony Medical Center

Abstract:

Standard of therapy for aspiration pneumonia is not well-established. Although early study isolates were predominantly anaerobes, newer data have shown aerobes as the primary etiology, principally common community acquired pneumonia pathogens. The 2019 Community Acquired Pneumonia Guidelines from the Infectious Diseases Society of America recommend with conditional, low-quality evidence, that anaerobic coverage should not be routinely added for suspected aspiration pneumonia unless suspected lung abscess or empyema. This study will help determine if the routine addition of anaerobic coverage in patients diagnosed with aspiration pneumonia is necessary to improve patient outcomes, particularly in-hospital mortality rate, length of stay, and readmission.

This retrospective, multicenter cohort trial retrospectively includes adult patients diagnosed with aspiration pneumonia from October 1st, 2012 to August 31st, 2022. Diagnosis of aspiration pneumonia is determined by ICD-10 codes through retrospective review of patient electronic medical records. Excluded patients are younger than 18 years, hospital acquired or ventilator associated pneumonia, development of in-hospital aspiration pneumonia, recent 90-day hospitalization, active lung cancer, immunosuppression, or transfers from another hospital.

Eligible patients are categorized by receiving aerobic or anaerobic coverage. Antibiotics are renally adjusted based on the hospital system's pharmacist collaborative practice agreement protocol. Aerobic antibiotics include ceftriaxone, cefepime, and levofloxacin, all with or without azithromycin. Anaerobic antibiotics include ampicillin/sulbactam, piperacillin/tazobactam, meropenem, ceftriaxone plus metronidazole, and levofloxacin plus metronidazole.

Treatment failure is defined as escalation of antimicrobial therapy, admission to a higher acuity of care, readmission to hospital or Emergency Department within 30 days, or in-hospital mortality. Escalation of therapy is defined as provider changing antibiotics due to patient's clinical worsening. Higher acuity of care admission is transfer to any Intensive Medical unit, such as Medical Intensive Care Unit equivalent across any of the hospital system's facilities.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of Two Fentanyl Continuous Intravenous Protocols on Time to Extubation in Critically Ill Patients

Author: Kevin Caguitla

Primary Preceptor: Tim Cruz

Institution: St. Elizabeth's Hospital - Hospital Sisters Health System

Abstract:

Purpose: Fentanyl is often used to treat pain in critically ill patients based on patient and drug specific factors as well as the Society of Critical Care Medicine Guidelines. Although fentanyl is frequently used, notable side-effects are still observed, such as delirium, hypotension, and dependence. At St. Elizabeth's Hospital, a new continuous fentanyl infusion order-set was created to initiate the continuous infusion at half the dosing rate as the previous order-set and emphasized the use of additional bolus doses versus increasing the rate of infusion automatically. The purpose of this study is to evaluate a continuous fentanyl infusion at a lower dosing rate and using bolus dosing on time to extubation, along with minimizing side effects, while maintaining pain and sedation goals.

Methods: A retrospective chart review has been approved by the Institutional Review Board and will be conducted using the electronic health records. Patients 18 to 89, who were treated in the intensive care unit between 10-1-2021 to 12-31-2022 with fentanyl continuous infusion are included. This information will be gathered using the Epic electronic health record, using medication ordering parameters, area of treatment, demographic data, inclusion/exclusion criteria and medical record number. A comparison of the new fentanyl continuous infusion with an initial dose rate of 25mcg/hr and emphasis of additional bolus dosing versus the traditional order-set with an initial rate 50 mcg/hr and emphasis of increasing dosing rates is to be completed. The primary objective is to assess if there is a difference in time to extubation. Secondary outcomes include achievement of adequate pain control and sedation, rates of reintubation, and delirium.

Results: In progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Optimization of Empagliflozin Use in Heart Failure Patients during Hospital Admission

Author: Alexandra Cannon

Primary Preceptor: Noreen Kelly

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Evaluate the current use of empagliflozin in heart failure patients and to develop a process for pharmacists monitoring with potential intervention for optimal goal directed therapy in patients with heart failure at a large integrated health-system

Background: The updated 2022 American Heart Association/American College of Cardiology/Heart Failure Society of America Guideline for the Management of Heart Failure included the addition of empagliflozin as a strong recommendation for patients at risk for heart failure and patients with symptomatic HFrEF regardless of diabetes status. Similarly, moderate recommendations were made for the treatment of HFmrEF and HFpEF following decreased hospitalizations and cardiovascular mortality outcomes. There is limited data regarding pharmacists' involvement in the management of heart failure in the inpatient setting. Existing literature evaluates outpatient pharmacy management with positive outcomes through pharmacist intervention. Following evaluation of inpatient empagliflozin use, this study aims to develop a process for pharmacists monitoring with potential intervention for optimal goal directed therapy in patients with heart failure at a large integrated health-system.

Methods: A retrospective chart review of patients admitted to Lutheran General Hospital with Heart failure from June 2022 to August 2022 was conducted. The primary outcome was quantity of patients who were started on empagliflozin as an inpatient. Secondary outcomes included patients with contraindications or patients deemed poor candidates by providers.

Results: 230 patient charts were included, with 27 patients receiving empagliflozin inpatient and 203 patients not started on empagliflozin inpatient. 88.2% of patients did not receive empagliflozin during their inpatient stay. Identifying the preferred pharmacy monitored process in the electronic health record is still in process.

Conclusion: Still in process and will be presented at the 2023 Illinois Pharmacy Resident Conference.

ds)

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Best practice advisories to increase utilization of disease state-specific admission order set addendums

Author: Elizabeth Canterbury

Primary Preceptor: Joshua Schmees

Institution: St. Elizabeth's Hospital - Hospital Sisters Health System

Abstract:

Purpose: To measure if Best Practice Advisories (BPAs) increase the use of disease state-specific order set addendums thereby reducing hospital length of stay (LOS) or all-cause in-hospital mortality.

Methods: This was a multicenter, retrospective, pre-post study. Non-ICU encounters with a principal diagnosis of heart failure, ischemic stroke, or pneumonia were included. The pre-implementation period was May 1 to August 31, 2022; the post-implementation period was October 1 to January 31, 2023. BPA implementation occurred in September 2022; thus, a washout period was defined as September 1 to 30, 2022. The primary outcome was the number of encounters with use of the addendum corresponding to the principal diagnosis. Secondary outcomes included hospital LOS and all-cause in-hospital mortality.

Results: Overall addendum usage increased by 65%, from 17% in in the pre-implementation group to 28% in the post-implementation group ($p<0.001$), driven by increased usage of the heart failure and ischemic stroke addendums. There was no change in usage of the pneumonia addendum. There was no difference in hospital LOS or mortality between groups, overall or for any individual disease state.

Conclusion: BPAs are an effective tool to increase usage of disease state-specific order set addendums.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Underlying mental health disorders and the risk of severe outcomes associated with coronavirus disease 2019 (COVID-19)

Author: Angelica Castro

Primary Preceptor: Hong-Yen Vi

Institution: VA - North Chicago, IL - Captain James A. Lovell Federal Health Care Center

Abstract:

Authors: Angelica Castro, PharmD; Hong-Yen Vi, PharmD, BCCCP, BCPS

Title: Underlying mental health disorders and the risk of severe outcomes associated with coronavirus disease 2019 (COVID-19)

Purpose: The primary objective of this study is to determine whether patients with mental health disorders such as depression and schizophrenia spectrum disorders are at increased risk of severe COVID-19 outcomes compared to those without these mental health disorders. While the Centers of Disease Control (CDC) considers certain mental health comorbidities as a risk for severe COVID-19 infection, the Captain James A Lovell Federal Health Care Center (FHCC) does not, so these patients are ineligible for antiviral or monoclonal antibody therapy unless they have another comorbidity. As a result, while these patients may be at risk of severe COVID-19 infection, they may not be treated appropriately. Since there are not many studies on this topic, this information could be useful to prevent severe infection and lessen the burden on the healthcare system.

Methods: This is a retrospective, cohort study that will assess whether depression and schizophrenia spectrum disorders impact COVID-19 outcomes in patients with mild to moderate COVID-19. Eligible subjects include individuals 18 years of age and older with a confirmed positive COVID-19 test, mild-moderate COVID-19, and at least one COVID-19 symptom. Patients were excluded if they had asymptomatic infections, severe COVID-19 upon admission, or were FHCC employees . Patients without depression or schizophrenia will serve as the control group while patients with depression and schizophrenia will be the treatment group. Computerized Patient Record System (CPRS) will be utilized for chart review. The primary outcome of this study includes severe COVID-19 outcomes defined as hospitalization, admission to the intensive care unit (ICU), intubation or mechanical ventilation, or death within 30 days of infection. This outcome will be analyzed by using descriptive statistics.

Results: Results are not yet available as research is pending.

Conclusion: Conclusion is not yet available as research is pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Pharmacological Treatment of Acute Agitation and Aggression in Hospitalized Pediatric Patients

Author: Miranda Chauncey

Primary Preceptor: Summer Record

Institution: OSF Healthcare Saint Francis Medical Center and OSF Healthcare Children's Hospital of Illinois

Abstract:

Purpose – Children frequently experience acute agitation in the emergency department and inpatient settings, though the incidence has not been clearly defined. Unfortunately, treatment guidelines do not exist due to the paucity of data to support the use of pharmacologic agents. Agents most commonly used for the management of acute agitation in children are benzodiazepines and antipsychotics; however, the safety of these agents has not been well described when used for acute management of agitation and aggression in children. The objective of this study is to describe medication utilization in the management of acute agitation and aggression in children across the OSF HealthCare System.

Methods – This study is a retrospective chart review of pediatric patients admitted or treated in an emergency department within the OSF HealthCare System between June 1, 2017 and June 31, 2022 who received at least one dose of either an antipsychotic or benzodiazepine for treatment of acute agitation or aggression. Exclusion criteria includes patients ≥ 18 years old, receiving scheduled benzodiazepine(s), ICU ventilated patients, benzodiazepines for alcohol withdrawal, and as needed doses prior to imaging or for seizures. The study team reviewed the medical records of eligible patients. Data collected includes demographic information, what benzodiazepines or antipsychotic agents are used, dose, route, frequency, administration date and time, indication for as needed doses, if a nursing communication order for physical restraints is in the chart, prior to admission medication list, and vital signs after a given benzodiazepine or antipsychotic dose. Descriptive statistics were used to analyze and describe medication utilization for the management of acute agitation and aggression in pediatric patients across the health system.

Results – Data analysis is in progress, and results are pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The Impact of Pharmacist-driven Care in Post-transplant Hyperglycemia in Comparison to Usual Care in Kidney Transplant Recipients in a Veteran's Affairs Transplant Center:

Author: Alisia Chen

Primary Preceptor: Anne Thorndyke

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Purpose: Early hyperglycemia affects nearly 90% of kidney transplant recipients (KTRs). Ensuring glycemic control is crucial, as post-transplant diabetes mellitus (PTDM) increases risk of graft failure, death-censored graft-failure and mortality. This study seeks to determine differences in interventions between pharmacist-led care compared to usual care.

Methods: This single-center retrospective study examines adult KTRs with type 2 diabetes prior to transplant. Patients were excluded if lacking an A1c result 1-6 months post-transplant, hospitalized > 7 days within 30 days post-discharge, managed with an insulin pump, or not on diabetes medications within 30 days post-discharge. Patients transplanted prior to April 30, 2022 were selected, and followed through October 30, 2022. The primary outcome was number of interventions completed per patient 30 days from index admission discharge. Secondary outcomes included type of appointments and interventions, and glycemic control 30 days post-discharge.

Results: Baseline characteristics were similar between usual care (n = 8) and pharmacist-managed (n = 13) groups. There was no statistically significant difference in number of interventions 30 days post-discharge between groups (mean 4 vs. 4, p = 0.80). 58-59% of visits in both groups were conducted face-to-face. Number of dose clarifications/adjustments and medication initiations/discontinuations did not reach statistical significance between groups. Mean change in A1c from baseline was -0.18% in the usual care group vs. -0.56% in the pharmacist-managed group (p = 0.57), with a mean post-transplant A1c of 6.8% and 6.3% respectively.

Conclusions: No statistically significant difference was found in outcomes between the usual care and pharmacist-management cohorts. There was a trend towards higher reduction in A1c in the pharmacist-managed group. This supports that pharmacists may be safely leveraged to provide follow-up in PTDM. Also, the use of telehealth modalities may allow for closer monitoring post-transplant. Additional research is needed to examine the impact of pharmacist-driven care in post-transplant hyperglycemia.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Impact of early MRSA nasal PCR screens in the ED on anti-MRSA antibiotic exposure during admission

Author: JinJoo Chung

Primary Preceptor: Kelsea Caruso

Institution: Northwestern Memorial Hospital

Abstract:

Methicillin-resistant Staphylococcus aureus (MRSA) is the causative pathogen in roughly 3-5% of patients who present to the emergency department (ED) with pneumonia. Regardless of this low prevalence, anti-MRSA treatment is initiated in about 40% of patients. And while MRSA nasal polymerase chain reaction (PCR) assays can be obtained the ED during the boarding process, evidence suggests that most screening takes place after patients are admitted to the hospital – prolonging exposure to unnecessary broad spectrum antimicrobial therapy.

In order to determine whether conducting MRSA nasal PCR swabs in the ED lead to shorter durations of anti-MRSA antibiotics in patients admitted to the hospital, this retrospective, single-center, observational study evaluated adult patients admitted to the hospital with a diagnosis of pneumonia or with radiographic evidence suggestive of a pneumonia who were initiated on vancomycin and/or linezolid in the ED. The primary outcome of interest was the time from first administration of an anti-MRSA agent to treatment discontinuation in patients who received a MRSA PCR nasal swab in the ED compared to those who received a PCR after admission onto a hospital unit.

The incidence of positive MRSA nasal swabs, acute kidney injury (AKI), duration of hospital length of stay, in-hospital mortality, and number of vancomycin levels drawn were also measured and evaluated as secondary and safety outcomes. Patients who did not receive a MRSA nasal PCR swab during their course of antimicrobial therapy were excluded, as well as those who were continued or re-initiated on anti-MRSA therapy for an indication other than initial pneumonia presentation, received 1 or less doses of anti-MRSA therapy, and transferred from outside hospitals. The full results of this observational study will be presented after completion of data collection and analysis.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of sedation practices in critically ill adults at a single center

Author: Veronika Colomy

Primary Preceptor: Patrick Costello

Institution: University of Chicago Medicine

Abstract:

Authors: Veronika Colomy, PharmD, BCPS, Natalie Haddad, PharmD, Mary Kate Johnson, PharmD, BCCCP, Gourang Patel, PharmD, MSc, BCPS, BCCCP, FCCP, FCCM, Randy Knoebel, PharmD, BCOP, Patrick Costello, PharmD, BCCCP

Purpose: The primary objective of this study was to evaluate sedation practices in mechanically ventilated patients at our institution.

Methods: This was a single-center, retrospective cohort analysis which included patients from the medical, cardiothoracic surgery, neurosciences, and surgical intensive care units (ICU). We enrolled patients who required light sedation and analgesia, defined as a RASS goal of -2 to 0, to facilitate mechanical ventilation. Patients were followed for the first 48 hours post-intubation and sedation initiation. Outcomes assessed included the depth of sedation, initial sedation regimen choice, documentation of daily SAT/SBT, new anti-psychotic initiation, and incidence of ileus.

Results: There were eighty patients included in our analysis: twenty-one from the medical ICU, twenty from the cardiothoracic surgery ICU, nineteen from the neurosciences ICU, and twenty from the surgical ICU. At 24 hours post intubation, 30% of patients had a RASS within goal, with 28.5% of patients having a RASS ≤ -3. There were a total of eleven different initial sedation variations, with the most common being propofol and fentanyl (47.5%) and the majority using only continuous IV sedation (58.8%). Dexmedetomidine was included in 27.7% of initial sedation regimens. Documented SAT at 24 hours post sedation occurred in 62.5% of patients and documented SBT at 24 hours post sedation occurred in 53.8% of patients. During ICU admission, 21.3% of patients were started on an anti-psychotic, with 8.8% being discharged from the hospital on it, and 36.3% of patients developed ileus, with 31.3% developing after sedation.

Conclusion: Our findings suggest areas of improvement within our sedation practices when compared with the 2018 PADIS guidelines, with significant numbers of patients being over-sedated within the first 24 hours, overreliance on continuous IV infusion regimens, prevalence of dexmedetomidine in initial sedation regimens, and lack of consistent SAT/SBT documentation.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Thrombotic Safety of Angiotensin II for Distributive Shock in the Cardiothoracic Intensive Care Unit

Author: Christine Cunningham

Primary Preceptor: Sarah Schaidle

Institution: Northwestern Memorial Hospital

Abstract:

Clinical concerns exist regarding the safety of angiotensin II in the cardiothoracic population due to the increased risk of venous thromboembolism seen when compared to placebo in clinical trials. Little data exist to evaluate the safety of angiotensin II in patients in the cardiothoracic intensive care unit (CTICU) on renal replacement therapy (RRT), temporary mechanical circulatory support (MCS), or post cardiac surgery. The purpose of this study is to evaluate the thrombotic risk and dosing strategies of angiotensin II in the CTICU.

A retrospective, comparative, single-center chart review was conducted including patients ≥ 18 years of age on RRT or temporary MCS in the CTICU. Temporary MCS devices included extracorporeal membrane oxygenation (ECMO), impella, and/or intra-aortic balloon pump. Patients receiving angiotensin II for non-distributive shock and those with permanent MCS devices were excluded. Patients receiving angiotensin II were compared to those who did not receive angiotensin II. The primary outcome was incidence of thrombosis during the index hospitalization. Additional outcomes included, but were not limited to, angiotensin II dosing regimens.

Primary outcome results are available for 104 patients. Thrombosis occurred in 32/52 patients in the angiotensin II group and 21/52 patients in the control group (61.5% vs. 40.4%; p=0.0493). Additional outcomes are in progress and will be available by the time of the conference.

Angiotensin II was associated with a higher rate of overall thrombosis in the CTICU. The results of this study provide data regarding the safety and thrombotic risk of angiotensin II in the CTICU. Additionally, the results of this study include 29 venoarterial ECMO patients receiving angiotensin II, a population previously excluded from landmark trials. Given the current lack of literature, the results of this study can be shared with other institutions to further impact angiotensin II safety and dosing strategies in the CTICU.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Antibiotic Prescribing in the Emergency Department for Urinary Tract Infections

Author: Monica Czuma

Primary Preceptor: Hettich Bradley

Institution: Advocate Lutheran General Hospital

Abstract:

Abstract

Title: Evaluation of Antibiotic Prescribing in the Emergency Department for Urinary Tract Infections

Authors: Monica Czuma, PharmD; Bradley Hettich, PharmD, BCCCP; Ami Shah, PharmD

Purpose: Urinary tract infections (UTIs) are commonly encountered in the emergency department (ED) – they are responsible for over one million ED visits annually in the United States. It is estimated that one third of antibiotics prescribed in the outpatient and ED setting are inappropriate. At Advocate Lutheran General Hospital (ALGH), pharmacists are heavily involved in the ED culture call back process on discharged patients with positive cultures. This single center, retrospective review will compare the appropriateness of initial antibiotic therapy for UTIs in patients discharged from ALGH's ED pre- and post-educational intervention for prescribers and pharmacists. Additionally, this could help standardize prescribing patterns across ALGH's ED for this indication.

Methods: Electronic medical records were retrospectively reviewed in two phases from 9/1/22 – 10/13/22 (prior to educational intervention) and planned between 1/25/23 – 3/8/23 (post educational intervention). Asymptomatic bacteriuria, uncomplicated and complicated UTIs, known risk factors for multidrug-resistant organisms (MDROs), and appropriateness of antibiotic therapy were defined through the process of literature review. An educational handout was created after assessing 6 weeks' worth of data collection utilizing the ED culture callback in-basket functionality for patients discharged from the ED with positive urine cultures and one on one provider education was provided. The primary outcome was to assess the appropriateness of initial antibiotic therapy prior to and after educational intervention in the form of a handout provided to the ED attendings. The secondary outcomes included wrong duration, frequency, dose, drug-bug mismatch, and any known risk factors that put a patient at increased risk for MDROs. Accepted pharmacist recommendations were also evaluated.

Results/Conclusions: Data analysis is in progress. Final results and conclusions will be presented at the Illinois Pharmacy Residency Conference in May 2023.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of a Pharmacist-Driven Surgical Prophylaxis Process at a Non-Teaching Community Hospital

Author: Deanna Daujatas

Primary Preceptor: Aaron Oliver

Institution: Palos Community Hospital (Northwestern Medicine)

Abstract:

Background: Pre-operative antibiotic administration as surgical prophylaxis reduces the risk of bacterial contamination during surgical procedures and results in fewer surgical site infections. Preliminary data at our institution identified gaps in the surgical prophylaxis process. Appropriate agents and doses were utilized in 89% (331/371) of surgical cases, but 58% (217/371) of cases did not have antibiotics administered within an appropriate time (within 60 minutes prior to incision for most agents). A disproportionate amount of antibiotics were verbally ordered while on route to the operating room. Pharmacist involvement in the ordering of surgical prophylaxis may help streamline the process of ordering surgical prophylaxis, ensure first-line agents are utilized for surgical procedures, and improve the timing of administration.

Purpose: The purpose of this quality improvement project is to evaluate the impact of a pharmacist-driven pre-operative surgical prophylaxis process on antibiotic ordering and timing of administration.

Methods: This is a retrospective, electronic medical record-generated chart review pre/post-implementation of a pharmacist-driven surgical prophylaxis process adopted at Northwestern Medicine Palos Hospital. Adults aged 18 years or older who underwent a surgical procedure and received surgical prophylaxis were included. Key data points included antibiotic allergies, allergic reaction types, surgical service, prophylactic antibiotic agent(s), antibiotic dose, and timing of administration in relation to incision. This project was deemed to be Quality Improvement and exempt from Institution Review Board approval.

Results and Conclusion: The results and conclusions will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of High Dose Levetiracetam Administered as Intravenous Push versus Intravenous Piggyback

Author: Kaley Deichstetter

Primary Preceptor: Nicholas Panos

Institution: Rush University Medical Center

Abstract:

Background:

Status epilepticus is a medical emergency which requires rapid administration of anti-seizure medications in the emergency department or intensive care unit. Loading and maintenance doses greater than 1500 mg of levetiracetam (LEV) are typically administered via intravenous piggyback (IVPB). Recent evidence has shown the administration of undiluted intravenous push (IVP) LEV to be safe based on retrospective observational cohort studies. However, there is no comparative evidence for IVP and IVPB doses greater than 1500 mg when administered as a loading dose or maintenance therapy. The purpose of this study is to evaluate the safety and tolerability of undiluted IVP LEV and IVPB doses greater than 1500 mg.

Methods:

Patients were identified via the electronic medical record between January 1st, 2020, and September 30th, 2022. The first cohort included patients who received high doses of LEV as IVPB before an institution policy change to allow high doses of LEV administered as IVP. The primary endpoint of this study is a composite of injection site reactions including injection site pain, erythema, paresthesia, pruritus, phlebitis, extravasation, hospital acquired bacteremia, and any documented adverse effects leading to LEV discontinuation. Secondary outcomes will be the individual evaluation of the composite outcome measures and turnaround time form order entry to LEV administration. Descriptive statistics will be presented as mean or median, categorical data will be analyzed via Fisher's exact test or Chi-square tests, and continuous data will be analyzed via Student's t-test, or a Wilcoxon rank-sum test, as appropriate.

Results:

There were 505 patients identified with a total of 442 patients included. Levetiracetam was administered to 224 patients as IVPB and 219 patients as IVP. Statistical analysis is in progress.

Conclusion:

It is anticipated results will show no difference in the composite outcome between IVPB and IVP administration of LEV to support current practice of IVP administration.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Hospitalized Patients with a beta-lactam Allergy Label (BAAL) and Unrevealed Tolerance: A Prevalence Study with Non-Invasive Delabeling Opportunities

Author: Michael Dickens

Primary Preceptor: Sheila Wang

Institution: Northwestern Memorial Hospital

Abstract:

Purpose: The epidemiology of BAALs with unrevealed subsequent exposure and tolerance to the culprit beta-lactam within a large tertiary medical center remains unknown. The purpose of this study is to determine the prevalence of hospitalized adult patients with a BAAL who subsequently tolerated the culprit beta-lactam without proper documentation in the allergy profile of the electronic medical record (EMR). Awareness of such prevalence could improve non-invasive □-lactam antibiotic allergy delabeling opportunities.

Methods: This is a retrospective review to determine the prevalence of adult inpatient cases of BAALs without proper documentation of re-exposure and tolerance to the culprit (or related) β-lactam allergic agent within the allergy profile of the EMR at Northwestern Memorial Hospital in Chicago, Illinois from 8/1/20 to 8/1/22. Eligible adult inpatients with at least one overnight stay at the hospital were identified through a requested generated list from the NM Enterprise Data Warehouse. Descriptive statistical analysis will be performed in Microsoft Excel LTSC Professional Plus 2021.

Outcomes: The primary outcome is to determine the prevalence of adult inpatient cases of BAALs without proper documentation of re-exposure and tolerance to the culprit β-lactam allergic agent within the allergy profile of the EMR. Our secondary outcome is to determine the prevalence of adult inpatient cases of BAALs without proper documentation of re-exposure and tolerance to a related β-lactam allergic agent within the allergy profile of the EMR.

Results/Conclusion: Results and conclusions are currently in process.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Establishing Use Criteria for Nebulized Acetylcysteine in Hospitalized Patients

Author: Catherine Donaldson

Primary Preceptor: Kerilyn Petrucci

Institution: University of Chicago Medicine

Abstract:

Purpose: To evaluate current-state prescribing patterns and collaborate with stakeholders to develop a set of evidence-based institutional use criteria to guide the use of nebulized n-acetylcysteine (NAC) among hospitalized patients at the University of Chicago Medicine (UCM).

Methods: A retrospective review was conducted to evaluate prescribing practices before and after the implementation of institutional use criteria for NAC. This criterion was created in conjunction with stakeholders and was implemented into practice at UCM in February 2023. All adult patients who received at least one dose of NAC during the pre-implementation (April 2022 to March 2022) and post-implementation (March 2023) periods were included for analysis to evaluate changes in prescribing practices.

Results: The pre-implementation analysis included 1067 administrations of NAC to 34 patients. The hospital services utilizing NAC most often were the cardiac/thoracic services (41%), general medicine services (23%), and trauma/surgical intensive care unit (21%) comprising 85% of overall use. The most common documented indication for NAC use was pulmonary hygiene either for a specified indication such as excess secretions or pneumonia (20%), or for routine pulmonary care without a specified indication (32%). In addition, 26% of the total administrations were documented as missed doses with the predominant reasons being the medication not being available and patient refusal. This data will be used to evaluate the changes in prescribing practices following the implementation of the use criteria in February 2023.

Conclusion: Pending the post-implementation review after March 2023.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Abrupt Discontinuation of Inhaled Corticosteroids in COPD

Author: Angela Dylewski

Primary Preceptor: Justin Schmidt

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Evaluation of Abrupt Discontinuation of Inhaled Corticosteroids in COPD

Presenter: Angela Dylewski, PharmD

Preceptors: Justin Schmidt, PharmD, BCPS; Jennifer Stoiner, PharmD, BCPS

Purpose:

The purpose of this study is to determine the effects of abrupt discontinuation of inhaled corticosteroids on exacerbation rate in COPD as compared to the effects of a taper off of inhaled corticosteroids on exacerbation rates over 24 weeks following discontinuation or start of taper of ICS. If there is an insufficient number of patients tapered off of inhaled corticosteroids, the effects of abrupt discontinuation of inhaled corticosteroids on exacerbation rate in COPD will instead be compared to exacerbation rates in patients with COPD who continue on inhaled corticosteroids.

Methods:

The electronic medical record will be used to retrospectively identify 376 patients with COPD who abruptly discontinued inhaled corticosteroids (for 6 months after at least 12 months of ICS prescription fills). These patients will be compared to 376 patients with COPD who tapered off of inhaled corticosteroids or to 376 patients with COPD who continued inhaled corticosteroids if there is an insufficient taper group. The difference in number of patients with COPD exacerbations (oral corticosteroid prescription fills, COPD admissions, and COPD ED visits) at 24 weeks will be analyzed as a primary outcome. Secondary outcomes include number of patients with each type of event qualifying as a COPD exacerbation, number of COPD exacerbations, time until first COPD exacerbation, change in exacerbation rate compared to baseline, change in spirometry, number of short-acting bronchodilator fills, and changes in non-ICS maintenance therapy. The primary outcome will be evaluated using Chi Square or Fisher's Exact test. Descriptive statistics will be provided to characterize data.

Results/Conclusion:

Pending completion of study.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Buprenorphine/Naloxone Utilization in Transitions of Care

Author: Pamela East

Primary Preceptor: Amulya Murthy

Institution: Mount Sinai Hospital Medical Center

Abstract:

Purpose:

The use of buprenorphine/naloxone has significant benefits in the treatment of opioid use disorder (OUD). As the accessibility of buprenorphine/naloxone for OUD has increased, especially with the recent removal of the prescriber X-waiver, so have opportunities for improvement in prescribing practices. Enrollment into OUD treatment programs with the use of buprenorphine/naloxone has been shown to reduce the risk of overdose and mortality. This project aims to look at trends in buprenorphine/naloxone prescribing at our institution, specifically inpatient induction and discharge, to identify areas of optimization for buprenorphine/naloxone use and to determine if patients are appropriately transitioned to outpatient treatment.

Methods:

A retrospective study was conducted on patients who were initiated on buprenorphine/naloxone while inpatient from March 2022 to September 2022. Information such as patient demographics, the Clinical Opiate Withdrawal Scale (COWS) scores, total buprenorphine/naloxone daily dose, and follow-up disposition (such as a referral to a Medication-Assisted Treatment (MAT) Clinic) were collected from the electronic medical record. Results were tabulated and delineated by data points such as the total daily dose of buprenorphine/naloxone given while inpatient, the number of patients provided with a bridge prescription at discharge, and the number of patients receiving opioid medications concomitantly during their inpatient stay. Additionally, data such as the number of consultations to the MAT team and the number of patients receiving naloxone at discharge were also extracted.

After collecting these data points, pharmacy resident-led education sessions were conducted for providers and pharmacists along with the development of an educational pocket card that was dispersed to attendees. Additionally, updates were made to the institution's buprenorphine/naloxone protocol. Post-intervention data analysis will be collected to evaluate changes to prescribing habits and assess the impact of interdisciplinary roles in buprenorphine/naloxone optimization.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Assessment of Adherence to Inpatient Diabetic Ketoacidosis Order Set

Author: Justin Ferek

Primary Preceptor: Sarah Park

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Purpose:

Diabetic ketoacidosis (DKA) is a medical emergency that requires urgent treatment with fluid resuscitation, electrolyte repletion, and insulin administration. Studies have shown that adherence to DKA protocols improves patient-centered outcomes related to treatment safety and efficacy, including length of hospital stay, time to DKA resolution, and incidence of hypokalemia. Advocate Illinois Masonic Medical Center (AIMMC) utilizes an evidence-based DKA order set to manage critically ill patients with DKA. However, due to the complexity of therapy and rapid changes in clinical status, it is often difficult for nurses to execute the orders that have been placed electronically. Additionally, physicians must frequently utilize the order set to add or modify orders in response to acute changes in the patient's condition. To facilitate adherence to the order set, a supplemental guidance document was created for the healthcare providers to reference while caring for such patients. The purpose of the project is to determine if the use of a supplemental guidance document will improve adherence to the institution's DKA order set.

Methods:

This is an observational cohort study evaluating if utilization of a supplemental guidance document in addition to a standard electronic DKA order set impacts patient care. Patients will be evaluated from July 2022 until October 2022 in the pre-implementation period and from November 2022 until February 2023 in the post-implementation period. Education regarding the purpose of the supplemental guidance document will be provided to pharmacists, nurses, and MICU physicians. The primary endpoint is a composite endpoint assessing appropriate potassium repletion, timely administration of dextrose-containing maintenance fluid, and sufficient overlap between intravenous and subcutaneous insulin when transitioning off intravenous insulin. Secondary endpoints include time to anion gap closure and incidence of hypoglycemia and hypokalemia.

Results:

Results are pending.

Conclusion:

Conclusions are pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the Use and Appropriateness of Parenteral Antihypertensives in an Urban Safety Net Hospital

Author: Taylor Fleet

Primary Preceptor: Andrew DeSio

Institution: Mount Sinai Hospital Medical Center

Abstract:

Purpose: National guidelines for the management of hypertensive emergency, a systolic blood pressure (SBP) greater than 180 mmHg or diastolic blood pressure (DBP) greater than 120 mmHg accompanied by end-organ dysfunction, advise the use of parenteral antihypertensives; conversely, in non-emergent scenarios, no such guidance regarding route of administration is in place. Literature demonstrates that there is harm associated with inappropriate use of parenteral agents, such as prolonged hospitalization and increased ischemic events. Thorough review of literature demonstrates that the overuse of parenteral antihypertensives is not uncommon in United States hospitals. The objective of this study is to determine appropriateness of parenteral antihypertensives used for the management of inpatient hypertension at an urban safety-net community hospital.

Methods: An electronic medical record report was used to identify patients who received parenteral antihypertensive agents. Currently, data extraction is ongoing, including: patient demographics, parenteral antihypertensive used, location where first dose was given, and contraindications to oral therapy. Average SBP, DBP, and rate of infusion at baseline and routine time intervals, average length of stay, average duration of intravenous infusion, and average number of pre-admission, pre-infusion, post-infusion, and discharge antihypertensives will be calculated. The reviewer will address patient-specific criteria to determine if the use of parenteral antihypertensives were used in the setting of hypertensive emergency, hypertensive urgency, or neither, as defined by American College of Cardiology and American Heart Association guidelines, to determine appropriateness of each infusion. Descriptive statistics will be used to analyze patient demographics, and determine if an association, if any, exists between these factors and any collected data.

Results: Work in Progress

Conclusions: Work in Progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Efficacy and Safety of Enoxaparin in Critically Ill Patients with Renal Dysfunction

Author: Connor Flynn

Primary Preceptor: Julie Baldassarra

Institution: Rush University Medical Center

Abstract:

The purpose of this study is to prove that enoxaparin is as safe as unfractionated heparin in patients receiving anticoagulation for venous thromboembolism treatment who have renal dysfunction, defined as an acute kidney injury or receiving continuous renal replacement therapy. Acute kidney injury is defined per the KDIGO guidelines as an increase in serum creatinine by greater than or equal to 0.3 mg/dL within 48 hours; or an increase in serum creatinine by greater than or equal to 1.5 times baseline, which is known or presumed to have occurred within the prior 7 days; or a urine volume less than 0.5 ml/kg/h for 6 hours.

This is a retrospective cohort study. Patients with renal dysfunction admitted to a critical care unit between 07/01/2019-07/01/2022 who received therapeutic anticoagulation with enoxaparin or unfractionated heparin will be eligible for inclusion. Patients receiving extracorporeal membrane oxygenation therapy while receiving therapeutic anticoagulation will not be eligible for inclusion.

The primary outcome of this study will be the difference in major bleeding between patients who received enoxaparin and patients who received unfractionated heparin. Major bleeding will be defined via the International Society on Thrombosis and Haemostasis: fatal bleed; symptomatic bleed in a critical area such as intracranial, intraspinal, intraocular resulting in vision changes, retroperitoneal, intraarticular, pericardial, or intramuscular with compartment syndrome; or bleeding causing a drop in hemoglobin of ≥2 g/dl leading to transfusion of ≥2 units of red blood cells.

Secondary outcomes will include number of new VTE's, anti-Xa levels, daily hemoglobin, daily platelets, and need for transfusions. We will also document ICU and hospital lengths-of-stay.

A sample size of 100 patients will be initially included as a convenience sample and expanded as necessary.

Results are currently pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Duration of cephalexin in Acute Uncomplicated Cystitis

Author: Olubusola Fowowe

Primary Preceptor: Joshua DeMott

Institution: Rush University Medical Center

Abstract:

PURPOSE

Acute uncomplicated cystitis is one of the most common indications of antimicrobial therapy, accounting for about 20% of hospital emergency department visits in the United States. IDSA cautions against using trimethoprim-sulfamethoxazole and fluoroquinolones as first line agents against acute uncomplicated cystitis. Cephalexin is commonly prescribed for acute uncomplicated cystitis. It has a favorable side effect profile with less incidence of Clostridium difficile infections (CDI) compared to fluoroquinolones, with resistance rates generally less than 10% in the United States; however, dosing frequency and duration varies between providers. Data suggests shorter duration courses are similar to longer duration; however, no data exists for courses less than 5 days. Furthermore, pharmacokinetic/pharmacodynamic data suggests that a 3-day course would provide similar results to other 3-day antibiotic regimens for acute cystitis. The primary goal of this study is to determine if 3 days of cephalexin is non-inferior to 5 days for the treatment of acute uncomplicated cystitis in adult patients presenting to the emergency department.

METHODS:

This is a prospective randomized open-label trial of patients 18 years or older, presenting to the emergency department with acute uncomplicated cystitis. Exclusion criteria include male sex, pregnancy and lactation, suspected pyelonephritis, known allergy to cephalosporins, immunosuppression, or renal impairment. Primary outcome includes clinical cure at day 28 with treatment of 3-day cephalexin compared to 5-day cephalexin. Secondary outcomes include incidence of treatment failure in both groups, resistance rates, patient adherence, and patient reported side effects.

All data will be reported using descriptive statistics with median and interquartile range [IQR]. Frequency data will be described using n (%). Categorical secondary outcomes will be assessed using Chi-squared or Fisher's Exact as appropriate. Continuous secondary outcomes will be assessed using a student's t-test or Mann Whitney-U as appropriate.

RESULTS:

Results to be presented.

CONCLUSION:

Conclusion to be presented.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Vancomycin area under the curve and trough correlation in pediatric oncology patients

Author: Sara Frey

Primary Preceptor: Reginald King

Institution: University of Chicago Medicine

Abstract:

OBJECTIVES: Vancomycin is an antibiotic often used in pediatric hematology/oncology patients, and there is limited data regarding the optimal dosing strategy. The primary objective was to examine the total daily vancomycin dose (TDD) required to achieve a therapeutic area under the curve (AUC) of 400-600 mg·h/L. The secondary objective was to determine the extrapolated vancomycin trough level from patients with a therapeutic AUC.

METHODS: This was a single-center, retrospective chart review evaluating all vancomycin orders in pediatric hematology/oncology patients between May 31, 2018 and June 30, 2022. Pediatric patients with a hematology/oncology diagnosis and pharmacokinetic documentation of a calculated AUC were included. Patients with acute kidney injury or admitted to the intensive care unit were excluded.

RESULTS: A total of 26 individual patient encounters and 41 AUC occurrences were included. The median patient age was 5.5 years old (interquartile range [IQR]: 2.9-7.5) and 46% of the population was male. Out of 41 AUC occurrences, 21 (51.2%) were within the therapeutic range. The median total daily dose (TDD) required to achieve a therapeutic AUC was 75 mg/kg/day (IQR: 60-108), and the median trough was 9.7 mcg/mL (IQR: 8.5-11.1). For patients with an AUC < 400 mg·h/L (14/41 or 34.2%), the median trough was 7.1 mcg/mL (IQR: 6.7-8.0) and the mean TDD was 77 mg/kg/day (SD: 24). No patients experienced acute kidney injury.

CONCLUSIONS: This evaluation further supports the premise that pediatric hematology/oncology patients often require higher daily doses of vancomycin to achieve a therapeutic AUC of 400-600 mg·h/L. In patients with a sub-therapeutic AUC, the median trough and IQR fell outside of the values considered to be therapeutic. According to these data, it may be appropriate to target a trough goal range of 8.5-11.1 mcg/mL in this population in the setting where an AUC is unable to be obtained.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Updated Curriculum and Instructional Methods for Drug Information: Survey of US Pharmacy Schools

Author: Justyna Fydrych

Primary Preceptor: Faria Munir

Institution: University of Illinois at Chicago College of Pharmacy

Abstract:

Objective:

Recent college of pharmacy accreditation and education standards from various organizations (such as the Accreditation Council for Pharmacy Education and the American Association of Colleges of Pharmacy) have commented on standards related to drug information skills and literature evaluation. Previous survey studies have evaluated drug information and literature evaluation course teaching methods, but many aspects of pharmacy education have subsequently evolved since the publication of these studies. For example, the Covid-19 pandemic has led to a greater reliance on remote didactic and experiential learning, and there is also a growing interest in active learning techniques such as team-based learning]. The purpose of this survey is to evaluate the status of current methodology and content of drug information-related education among U.S. colleges of pharmacy.

Methods:

In December 2022, a survey detailing drug information class content and structure was emailed to 140 U.S. Colleges of Pharmacy. The survey was created using questions from the 2012 survey by Phillips et al, along with additional questions that were generated based on recent literature on professional pharmacy education and the impact of the COVID-19 pandemic on education and student performance. The survey was sent to the Dean and a Drug Information specialist at each institution. Data was collected through Qualtrics and kept confidential.

Results:

Results and conclusion are still pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Prevalence of Trichomonas Testing in Males Presenting to the Emergency Department with STI Concerns

Author: Caroline Gander

Primary Preceptor: Stephany Nunez Cruz

Institution: Rush University Medical Center

Abstract:

Purpose

Trichomonas is one of the most common STIs in the United States, annually affecting more people than gonorrhea and chlamydia combined. While trichomonas is more prevalent in females, males can still be affected, but most cases are asymptomatic, which makes detection and treatment challenging. Untreated trichomonas has been associated with a host of complications including pre-term labor, low birth weight infants, HIV, and cervical cancer. Thus, the purpose of is study is to determine the prevalence of trichomonas testing in males who present to the ED with concerns for STI.

Methods

The was an IRB-approved, single-center, retrospective study and collected data was a result of routine care. Male patients who presented to the ED with concerns for STI and for whom the STI standard testing panel was ordered and performed will be assessed for inclusion. The electronic medical record system was used to collect data, including patient age, gender, weight, height, sex, race, diagnosis, results of test on STI panel, medications prescribed, medication regimens (dose and duration), past medical history (chlamydia, gonorrhea, syphilis, HSV-1, HSV-2), disposition, and reinfection status at 6 months. The primary objective was to determine the prevalence of trichomonas testing in males who present to the ED with concerns for STI. The secondary objectives of this study were to determine the prevalence of trichomonas in males given the institutional rate of testing (less than 100%), rates of coinfection with additional STIs, appropriate treatment regimen (per guidelines), and any demographic associations.

Statistical analysis was performed, including mean (SD) used to describe normally distributed data and median (interquartile range [IQR]) used for skewed data. Distribution of data and assessment of normality were analyzed. The primary outcome of prevalence was described using n (%). Secondary outcomes were analyzed using t-test or ANOVA as appropriate.

Results

Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the Role of Oral Vancomycin Prophylaxis (OVP) in Prevention of Subsequent Clostridioides difficile Infection (CDI) in Patients Receiving Systemic Antibiotics

Author: Samaneh Ghassemi

Primary Preceptor: Lisa Young

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Background:

Clostridioides difficile infection (CDI) is diagnosed in approximately 500,000 people in the United States annually, often as a result of antibiotic use. A major challenge associated with CDI is the high recurrence rate following initial treatment and recovery. Approximately 20-28% of patients who develop CDI will experience at least one recurrence. While the 2021 Infectious Disease Society of America and Society for Healthcare Epidemiology of America guidelines do not address the prevention of subsequent CDI, the 2021 American College of Gastroenterology guidelines give a conditional, low quality of evidence recommendation for oral vancomycin prophylaxis (OVP) as an option when non-CDI systemic antibiotics are administered. Given the lack of strong evidence supporting the use of OVP for prevention of subsequent CDI, this study aims to determine whether administration of OVP when non-CDI antibiotics are concomitantly prescribed could reduce the risk of subsequent CDI in patients at our facility.

Methods:

This study is a retrospective, electronic chart review of patients who are diagnosed with CDI and are prescribed a non-CDI systemic antibiotic therapy within one year of initial CDI infection. Patient will be placed into two groups: those subjects prescribed non-CDI antibiotics with OVP and those subjects prescribed non-CDI antibiotics without OVP. An electronic report of all patients prescribed oral vancomycin between October 1, 2006 and September 30, 2021 will be utilized to identify patients diagnosed with CDI. The primary endpoint of CDI incidence between groups will be defined as the development of CDI while on non-CDI antibiotics or within 2 weeks following the last day of non-CDI antibiotic therapy. The secondary endpoints of all-cause hospital readmission and 90-day and 6-month all-cause mortality between groups will also be evaluated.

Results/Conclusion:

To be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Assessing the costs and benefits of operating a medication discount program within the outpatient pharmacy of an academic medical center

Author: Austin Githens

Primary Preceptor: Denise Scarpelli

Institution: University of Chicago Medicine

Abstract:

The University of Chicago Medicine is a non-profit safety net hospital which participates in the 340B Drug Discount Program. Participation in this program allows qualified hospitals to purchase outpatient medications at a discounted price, so that the health-system can stretch scarce resources further when caring for underserved populations, and to ultimately give back to their communities. This giving back to the community is called Community Benefit, and can consist of several different ways to serve the community. Examples include Charity Care (providing free or discounted care), community health initiatives such as addiction recovery services, drug discount programs, and more. The University of Chicago Medicine operates a drug discount program, through which patients are able to receive eligible discharge prescriptions at a flat price of $5 or $10. This program utilizes the savings gained from participating in the 340B program with the intent of providing medications for patients who would otherwise be unable to afford care.

The purpose of this study was to assess the costs and benefits associated with operating this drug discount program. This was accomplished through a retrospective review of patient charts and prescription dispensing history through the University of Chicago Duchossois Center for Advanced Medicine (DCAM) Outpatient Pharmacy. Utilization and cost of the medication discount program was assessed through billing data from the DCAM pharmacy, and this data was used to calculate the patient savings. Patient outcomes and dispensing metrics were also collected using data from the DCAM Pharmacy.

Final results are pending at this time.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Develop and Implement a Comprehensive Diversion Surveillance Program

Author: Shannon Goniwieca

Primary Preceptor: Lynn Boecler

Institution: NorthShore University HealthSystem

Abstract:

Background:

The American Society of Health-System Pharmacists (ASHP) published Guidelines on Preventing Diversion of Controlled Substances in order to better protect patients, healthcare workers, and the community from diversion. This initiative aims to help organizations comply with federal and state laws and regulations, and also utilize technology with diligent surveillance to proactively prevent and seek out diversion. This health system region (which includes 6 hospitals) developed a plan to implement the best practices and standardize controlled substance (CS) diversion prevention protocols across the organization. This project will focus on the development of the controlled substance diversion prevention program (CSDPP) and standardization of procedures at this health system to ensure prevention, identification, and investigation of CS diversion.

Methods:

This is a deemed quality improvement project and is exempt from Institutional Review Board approval. A taskforce of 12 pharmacists was created across the six hospitals. The taskforce performed a gap analysis using the ASHP guidelines on preventing diversion of controlled substances to compare the existing diversion activities across all sites. Each section of the CSDPP was analyzed separately as a means to organize data. The results were used to find areas where standardization is needed across this health system. After comparisons are made, policies will be written up for each section of the ASHP best practices. The final policies will be presented to and reviewed by the internal diversion committee. Upon approval, the standardized policies will be implemented at the three organizations.

Summary of Results:

The results of the gap analysis were that the health system is 38% fully compliant, 59% partially compliant, and 11% non-compliant with the best practices.

Conclusion:

Based on the gap analysis results, the taskforce is working to rewrite our current policies and close the gaps.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Determining the impact of a live video-based education intervention on community pharmacist prescribing and dispensing of glucagon

Author: Steven Gonzalez

Primary Preceptor: Christina Cross

Institution: Jewel – Osco Pharmacies

Abstract:

Glucagon has proven effectiveness in treating severe hypoglycemia, however less than 10% of patients that have experienced a hypoglycemic event are prescribed a glucagon emergency kit following their hospital discharge. A collaborative practice agreement (CPA) and glucagon prescribing service was established in 2022 by a pharmacy chain to allow pharmacists to prescribe glucagon emergency kits. However, glucagon emergency kit dispensing data shows limited program participation, suggesting there are barriers to pharmacist utilization of this service. To overcome this, a 1-hour live video-based training program was designed to be an interactive, active learning opportunity for pharmacists to review drug information, the glucagon service outline, and counseling technique. The purpose of this study is to determine the impact of a live video-based training program on pharmacist prescribing of glucagon emergency kits and identify glucagon-receiving patient population data from community pharmacies.

The study isa multi-site prospective study to be conducted from January 2023 to March 2023. Study locations will include 10 randomly selected community pharmacies in the western and southern Chicago suburbs from a list of pharmacies that have similar weekly prescription counts, store hours, and patient populations. Five of the selected locations will be assigned as the intervention group and will attend the 1-hour educational session held over Microsoft Teams, which will cover glucagon education and the prescribing service outline. Weekly glucagon dispensing numbers and patient demographic data will be collected via community pharmacy database reporting and will be compared between stores that received the intervention and control stores using an un-paired t-test.

This study is currently in progress and seeks to determine the impact a live video-based education program has on pharmacist prescribing of glucagon emergency kits.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of an Inpatient Pharmacy Gemba Board at the Jesse Brown VA Medical Center

Author: Sylwia Greczek

Primary Preceptor: Emily Kalusetsky

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Implementation of an Inpatient Pharmacy Gemba Board at the Jesse Brown VA Medical Center

Sylwia Greczek, PharmD, Emily Kalusetsky, PharmD, Alexandra Riskus, PharmD, Isabel S. Karceski, PharmD

Purpose: The healthcare industry is constantly growing and evolving, thus successful management of healthcare organizations can be challenging. This growth pushes for healthcare organizations to implement new processes to ensure they are delivering the highest quality of care to their patients. One of these models is called the Lean system, which in healthcare was linked to improved efficiency, cost reduction, patient satisfaction, and quality improvement. One strategy used to implement the Lean system in healthcare is by using a visual management system, such as a Gemba board. This creates a time where employees can share information, including any challenges from the day. It also allows administration to gain a fresh perspective, as staff can share process improvement ideas on the board. All of this aims to empower and engage the staff which should result in increased accountability and improved outcomes. The purpose of this QI project will be to analyze the Inpatient Pharmacy huddle system at the Jesse Brown VA Medical Center (JBVAMC) after implementation of a Gemba board.

Methods: This QI project outlines a descriptive analysis of the Inpatient Pharmacy huddle system at JBVAMC after implementation of a Gemba board. The analysis will evaluate the effectiveness of the Gemba board by assessing: number of daily readiness action items identified, improvement ideas identified, and examination of employee satisfaction. All the data collected will not include individual level, identifiable staff information. Data will be an aggregate of de-identified information.

Results: The results of this QI project will advocate for the use of the Gemba board lean strategy. Implementation of the Gemba board lean strategy will allow pharmacists to communicate challenges and process improvement ideas amongst staff and leadership. Full results and conclusion to be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Phenobarbital vs. Lorazepam for Treatment of Alcohol Withdrawal in Benzodiazepine Refractory Patients

Author: Joseph Griffin

Primary Preceptor: Mary Kate Johnson

Institution: University of Chicago Medicine

Abstract:

Purpose: The cornerstone of treatment for Alcohol Withdrawal Syndrome (AWS) is symptom-triggered benzodiazepine administration. Phenobarbital, due to its longer duration of action and potentiation of additional receptors when compared to benzodiazepines, was shown in literature to decrease intensive care unit (ICU) admissions, shorten length of ICU and hospital stays, decrease need for mechanical ventilation and decrease cumulative benzodiazepine dose. Phenobarbital was added to the University of Chicago Medicine alcohol withdrawal order set in October of 2020 for use in benzodiazepine-refractory AWS. The purpose of this study is to evaluate the efficacy and safety of the current dosing and utilization strategy of phenobarbital in severe AWS.

Methods: This is a single-center, retrospective chart review of patients diagnosed and treated for severe AWS at the University of Chicago Medicine between October 2020 and January 2022. Patients that received adjunctive phenobarbital for AWS are compared with historical controls that were managed utilizing symptom-triggered lorazepam. The primary endpoint is the difference in ICU length of stay between treatment groups. Secondary outcomes include total benzodiazepine use, ICU admission avoidance and hospital length of stay.

Results: A total of 54 patients were included in the final analysis; 27 patients receiving lorazepam and 27 patients receiving phenobarbital. The median ICU length of stay was 30.5 hours (IQR 15-74.5) and 22.5 hours (IQR 7-48.3) in the lorazepam and phenobarbital groups, respectively ($p = 0.585$). The median hospital length of stay was 115 hours (IQR 76-200) and 123 hours (IQR 56-187) in the lorazepam and phenobarbital groups, respectively ($p = 0.748$). The median benzodiazepine use (in lorazepam equivalents) was 13 mg (IQR 6-52) and 6.5 mg (IQR 2.5-14) in the lorazepam and phenobarbital group, respectively ($p = 0.025$). There was no difference in ICU admission rates (14.8% vs 29.6%).

Conclusions: Although failing to show significance, patients receiving phenobarbital for severe AWS had a numerically decreased ICU length of stay and longer hospital length of stay. The median benzodiazepine use was lower in the phenobarbital group compared to the lorazepam group. Additional patients will need to be evaluated to exclude the potential for type II error.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Mycophenolate Now, Infections Later? Prevalence of Infection with Mycophenolate-containing Immunosuppressive Regimens Following Allogeneic Hematopoietic Stem Cell Transplantation

Author: Lindsey Griggs

Primary Preceptor: Jane Kosirog-Glowacki

Institution: Advocate Lutheran General Hospital

Abstract:

Allogeneic hematopoietic stem cell transplant (HSCT) recipients receive immunosuppressive therapy to prevent graft-versus-host disease (GVHD). Immunosuppressive regimens vary based on transplant type and may include a calcineurin inhibitor, low dose methotrexate and/or mycophenolate mofetil (MMF). With increasing haploidentical transplants, more MMF is used in transplant patients. Allogeneic transplant patients have multiple factors that increase infection risk. Adding immunosuppression with MMF may further increase this risk. The aim of this project is to evaluate infection prevalence in allogeneic transplant patients up to day + 100.

A single-center, retrospective evaluation of adult allogeneic HSCT inpatients at Advocate Lutheran General Hospital was performed between March 1, 2020 and August 31, 2022. Adults aged 18 or older who received allogeneic HSCT and immunosuppression were included. Data were collected via electronic medical record review and generated reports to assess baseline characteristics and the primary outcome of infection. This data included donor type, conditioning regimen, infection markers, GVHD regimen, infection prophylaxis regimen, hospital readmissions, clinic or emergency department visits for infection, surrogate biomarkers indicating infection and new anti-infective medications.

Results: (pending)

Discussion: (pending)

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: High vs. Low Dexmedetomidine Doses in Post-Operative Cardiothoracic Surgery Patients

Author: Rana Hamad

Primary Preceptor: Uyen Nguyen

Institution: OSF Saint Anthony Medical Center

Abstract:

The role of dexmedetomidine, an alpha 2-agonist, routinely used for the sedation of mechanically ventilated patients in the intensive care unit (ICU), has been explored for its' impact on pain and opioid-sparing effects. Studies assessing dexmedetomidine's role following surgeries have largely focused on sedation, pain scores, and opioid sparing outcomes. However, information regarding the effect of variable-dose dexmedetomidine on patients' pain is limited. The purpose of this study is to assess potential opioid-sparing effects of higher vs lower dosing ranges of dexmedetomidine in patients recovering from surgery. This retrospective study was approved by the Institution Review Board. We will assess the efficacy of higher versus lower dexmedetomidine dosing ranges in the management of post-operative pain in patients recovering from cardiothoracic surgeries between January 2017 through February 2022. Our primary outcome is defined as number of as needed opioid dose requirements post-dexmedetomidine infusion and total cumulative opioid doses (in morphine equivalents) in the first 24, 48, 72 hours since dexmedetomidine infusion initiation. Our secondary outcomes include hospital length of stay (LOS), ICU LOS and intubation duration on the ventilator. Patients that will be included are adults admitted for cardiothoracic surgery. We will exclude those with a history of opioid abuse or addiction, pregnant women, those <18 years old as well as patients undergoing non-invasive cardiac surgery. Baseline characteristics such as age, gender, ethnicity, body mass index (BMI), length of ICU and hospital stay, duration on the ventilator and type of cardiothoracic surgery will be collected. Opioid regimen information (drug, dose, duration, number of doses, cumulative 24-hour doses received in the first 24, 48 and 72 hours) will be collected in morphine equivalents. Non-opioid medications and time to first opioid dose since dexmedetomidine initiation will also be collected.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Assessing the Current State of Pharmacologic Management During Rapid Sequence Intubation in Inpatient units at Northwestern Memorial Hospital (NMH)

Author: Rawan Harb

Primary Preceptor: Kendall Mores

Institution: Northwestern Memorial Hospital

Abstract:

Rapid sequence intubation (RSI) often requires administration of sedative and neuromuscular blocking agents. Following intubation, prompt initiation of continuous sedative and analgesic agents is necessary to prevent awareness during paralysis. At Northwestern Memorial Hospital (NMH), anesthesiologists respond to RSI alerts with the necessary equipment while pharmacists provide commonly used agents like etomidate, propofol, succinylcholine, rocuronium, and the reversal agent sugammadex. The anesthesiologists determine the appropriate RSI medications, and the pharmacist draws the entire vials for the anesthesiologist to independently dose and administer. The pharmacist then assists in sedation, analgesia, and mitigating hemodynamic instabilities.

Data exists to suggest that the presence of pharmacists at RSIs in the Emergency Department (ED) decreases the time between intubation and initiation of post-intubation sedation and analgesia. However, limited information is available regarding the benefit of pharmacist involvement in RSI outside of the ED. The purpose of this study is to determine the time between RSI and initiation of post-intubation sedation and analgesia in the inpatient setting at NMH.

This is a single-center retrospective chart review of RSIs from August 2021 to August 2022. Inpatient adult RSI encounters involving common RSI medications were included. Patient data collected includes demographics, indication for intubation, patient location, vitals, sedatives used and doses, paralytics used and doses, and time to post-intubation sedation and analgesia. The primary outcome is the percentage of patients undergoing RSI receiving both post-intubation sedation and analgesia within 120 minutes of code activation. Secondary outcomes include the number of patients receiving post-intubation sedation within 120 minutes, number of patients receiving post-intubation analgesia within 120 minutes, the time to post-intubation sedation and analgesia, frequency of appropriate sedative and paralytic dosing, and frequency of vasopressor initiation.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of an Accredited Pharmacy Technician Education and Training Program in a Multi-site Health System

Author: Athanasius Hasselbrook

Primary Preceptor: Marilin Wong

Institution: Advocate Condell Medical Center

Abstract:

Purpose: The Illinois Pharmacy Practice Act has a new requirement effective January 1, 2024 that all new pharmacy technicians must be educated and trained using an education and training program that is nationally accredited by ASHP/ACPE or another board-approved program. The purpose of this project is to support implementation of a pilot pharmacy technician education and training program at three preselected Advocate Aurora Health (AAH) hospitals in mid-2023 by creating accreditation materials.

Methods: A previous pharmacy resident project conducted a cost-benefit analysis and determined that partnering with Pharmacy Technician University (PTU) National Standards Program by Therapeutic Research Center (TRC) to establish an accredited training program would be the best option for the AAH system. Historical technician hiring data were assessed to determine three AAH sites for the pilot program and the quantity of contracted technician trainees for the 2023 pilot program. To ensure all required materials will be ready to support program implementation, first, AAH representatives met with TRC to gain an understanding of TRC accreditation resources. After the contract was signed, an advisory committee was created to establish oversight of the program, which includes approval of curriculum and various resources as well as policies and procedures. All committee members reviewed the ASHP/ACPE accreditation standards. Next, a comprehensive program manual will be developed, and all policies and procedures required to implement the pilot program will be reviewed for approval through the advisory committee by mid-2023. After the implementation of the pilot program, ongoing efforts will be necessary to review all resources provided by TRC as part of the accreditation process upon enrollment of the first technician candidate, to create resources not provided by TRC for program accreditation, and for the advisory committee to meet for initial and ongoing strategic planning per accreditation requirements.

[Results and Conclusion: Pending]

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Rate of Unintentional Medication Discrepancies in Medication Histories Obtained by Both Pharmacy and Nursing Staff Compared to Only Pharmacy Staff: A Pre-Post Study.

Author: Emily Heflin

Primary Preceptor: Liz Jochum

Institution: Northwestern Medicine Delnor Hospital

Abstract:

The purpose of this observational, retrospective, pre-post study was to determine if there is a difference between the rate of unintentional medication discrepancies in medication histories obtained by both pharmacy and nursing staff compared to medication histories obtained only by pharmacy staff. The patient's medication history obtained on admission was compared to the gold standard medication history created by a pharmacist after admission using Leapfrog's gold standard criteria. The primary population was hospitalized adult patients at a community hospital in Illinois, admitted for at least 24 hours, and who used at least 5 home medications prior to admission. Included patients must have been able to be interviewed without interpreter services. The primary outcome was the hospital's rate of unintentional medication discrepancies made during medication histories obtained on admission between groups. It was estimated for the study to have 80% power, the study would need a target sample size of 106 patients (53 patients in each group) to determine a statistically significant difference of 11.1% between both groups. This was determined assuming an alpha of 0.05 and an estimated standard deviation of 0.2. Chi square was used to evaluate the primary outcome, with secondary outcomes being evaluated using chi square and student t-test. The hospital's rate of unintentional medication discrepancies was 0.023 last year compared to 0.028 this year, however these results proved to be statistically insignificant ($p>0.05$). Additionally, looking at the group made up of pharmacists & nurses, the error rate was 0.012 for the pharmacists individually compared to 0.065 for nurses. The difference in these error rates was statistically significant ($p<0.001$). The results of this study show that there is a statistically significant increased number of errors on medication histories performed by nursing staff compared to pharmacy staff.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of an evidence-based approach to treat diabetic ketoacidosis (DKA).

Author: Joshua Herrera

Primary Preceptor: Eric Pelletier

Institution: Franciscan Health Alliance, Dyer

Abstract:

Authors: Joshua Herrera, PharmD; Eric Pelletier, PharmD, BCPS, BCCCP; Scott Harris, PharmD, BCPS

Purpose: To determine if recent changes made to the facility DKA protocol improved patient outcomes. A multi-site retrospective study will be conducted to examine outcomes such as adherence to protocol, length of stay, and time to resolution of DKA. Secondary outcomes will evaluate the safety and efficacy of the new protocol in patients diagnosed with CKD.

Methods: A retrospective chart review will be conducted on patients admitted to Franciscan Health Dyer/Munster sites and treated for DKA. This study will compare patients from both before and after the implementation of the new DKA protocol. Patient data such as demographics, medications received, and labs associated with DKA will be collected for assessment of patient outcomes. The primary endpoints will be the time to resolution of DKA as measured by a normal blood glucose, the closure of anion gap, and length of stay in the ICU/hospital. Secondary endpoints will be time of resolution of DKA, rates of hypoglycemia, rates of restarting insulin infusion, adverse drug reactions, and length of stay in the ICU/hospital in patients with and without previously diagnosed CKD.

Results/Conclusion: Pending and data collection is in process.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Empagliflozin and Dapagliflozin in Heart Failure with a Reduced Ejection Fraction.

Author: Megan Hindmon

Primary Preceptor: Connie Ku

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose: In heart failure patients with reduced ejection fraction, empagliflozin and dapagliflozin have been shown to reduce the risk of hospitalization for heart failure, regardless of the presence or absence of type 2 diabetes. The purpose of this study is to analyze whether the benefits of empagliflozin and dapagliflozin are seen in clinical practice and whether pharmacist education and intervention can have a positive impact on the use of these medications in patients with heart failure.

Methods: A retrospective analysis comparing empagliflozin or dapagliflozin plus standard therapy versus standard therapy alone, was conducted from May 1st, 2022 to September 30th, 2022 and a prospective analysis took place from October 1st, 2022 to February 28th, 2023. In-services for family medicine and internal medicine residents were completed in September 2022. Education was provided summarizing the benefits of empagliflozin and dapagliflozin in heart failure patients, as well as safety and dosing information. Patients included were aged 18 years or older with chronic heart failure with an ejection fraction less than or equal to 40 percent who were already on guideline directed medical therapy for heart failure. Patients excluded were those who have an estimated glomerular filtration rate below 25 mL/min, type 1 diabetes, or were pregnant. Primary outcomes included hospitalization for a heart failure exacerbation, unexpected visit to a primary care provider for a heart failure exacerbation, or cardiovascular mortality. In addition, the percentage of patients receiving therapy with empagliflozin or dapagliflozin during the retrospective and prospective periods were analyzed, to determine whether pharmacist education increased the use of these medications in heart failure patients with reduced ejection fraction. A secondary safety analysis was conducted on frequency of adverse events.

Results: Prospective results are pending.

Conclusion: Prospective results are pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Analysis of Intravenous to Oral Antimicrobial Step-down Therapy Following Pharmacist Education

Author: Kaitlin Hitt

Primary Preceptor: Anthony Phan

Institution: Advocate Good Samaritan Hospital

Abstract:

Purpose:

Patients who are hospitalized are frequently initiated on intravenous (IV) antibiotics empirically pending workup throughout admission, then antimicrobials are narrowed based on site of infection and culture data. However, transition from IV to oral therapy often does not occur during hospitalization. One-third of all inpatients initiated on IV antibiotics are eligible to switch to an oral equivalent. Initiating patients on oral antibiotics after a two- or three-day course of IV antibiotics is beneficial because select oral antimicrobials will produce the same serum levels as equivalent IV antimicrobial, and oral agents can expedite patient discharge, prevent catheter associated infections from the peripheral or central catheter, and decrease hospital cost. Advocate Aurora Health (AAH) clinical pharmacists have access to resources that provide step-down oral therapy options based on indication, that include guidance for when to consider transition to oral antimicrobial therapy, and indicate which antimicrobials can be de-escalated independently by a pharmacist per protocol. The aim of this study is to assess the impact of pharmacist education on parenteral to oral antimicrobial step-down therapy in patients admitted to inpatient units at Advocate Aurora Health Good Samaritan Hospital.

Methods:

This project is a single-center retrospective observational study. Patients will be evaluated from October 2021 to December 2021 in the pre-education arm and from October 2022 to December 2022 in the post-education arm. Education regarding the purpose and accessibility of AAH resources will be provided to the inpatient clinical pharmacists. The primary endpoint is assessing if the patient was transitioned to oral antimicrobial during hospitalization and if pharmacy education on available resources impacted the proportion of patients transitioned to oral therapy.

Results: Pending data collection

Conclusion: Pending data collection

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: High Dose Nitroglycerin With or Without Bolus for the Treatment of Hypertensive Pulmonary Edema

Author: Haneen Hussein

Primary Preceptor: Alisha Patel

Institution: University of Chicago Medicine

Abstract:

Hypertensive pulmonary edema, or sympathetic crashing acute pulmonary edema (SCAPE), is a life-threatening complication in patients with heart failure. Early diagnosis and treatment is essential to reduce complications and mortality. The mainstay of treatment is non-invasive positive pressure ventilation, such as Bilevel positive airway pressure (BiPAP), and nitroglycerin (NTG). Recent studies demonstrate that administration of NTG boluses decrease the incidence of intubation, reduce intensive care unit (ICU) admissions, and decrease length of stay (LOS). Optimal dosing and administration of NTG boluses have yet to be established. The purpose of this study is to compare ICU admissions in patients who received NTG bolus plus infusion (BPI) versus infusion alone (IA).

This study is a single-center, retrospective, observational study at the University of Chicago Medicine. Patients were included if they were admitted to the emergency department (ED) and received NTG for suspected SCAPE based on clinical presentation and imaging. The primary outcome was the number of ICU admissions. Secondary outcomes included rates of intubation, rates of initiation on BiPAP, and incidence of hypotension during therapy.

Ninety-five patients received NTG for treatment of SCAPE in the ED from January 1, 2020 to June 30, 2022. There was no difference in ICU admission between the BPI and IA groups (40.9% vs. 26.2%, p = 0.264). The BPI group experienced more intubations (18.2% vs. 2.4%, p=0.044) and higher rates of BiPAP initiation (90.9% vs. 64.3%, p=0.035). There was no difference in the incidence of hypotension or hospital LOS between the treatment groups.

In patients with SCAPE, the use of high-dose NTG bolus plus infusion was demonstrated to be as safe and effective as nitroglycerin infusion alone. Further research is needed to determine appropriate dosing strategies.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Clinical Impact of a Pharmacist-Led Medication Titration Clinic on Patients with Heart Failure with Reduced Ejection Fraction

Author: Joann Huynh

Primary Preceptor: Rachel Lavelle

Institution: University of Chicago Medicine

Abstract:

Although it is well-established that guideline-directed medical therapy (GDMT) is associated with reduced hospitalizations and mortality and improved functional capacity in heart failure patients with reduced ejection fraction, there are still delays to initiating such medications and achieving maximally tolerated doses. At the University of Chicago Medicine, the Medication Titration Assistance Clinic (MTAC) provides streamlined medication management and close monitoring through a standing order agreement and in-person and virtual visits. The research aims to understand the impact of MTAC enrollment on rates of maximally tolerated doses of GDMT in the context of telehealth and sodium-glucose cotransporter-2 inhibitors becoming more embedded into current practice.

This retrospective cohort study compared MTAC patients enrolled since the clinic's inception in September 2021 and who achieved optimal therapy prior to July 2022 to a control group of general cardiology patients during a comparable time frame, with a follow up period of up to 9 months. The primary endpoint was achievement of target or maximally tolerated GDMT doses, as defined per the 2022 American Heart Association/American College of Cardiology Guideline for the Management of Heart Failure. Secondary endpoints included incidence of hospitalization and change in left ventricular ejection fraction (LVEF).

In total, 61 patients were included, with 24 comprising the MTAC group and 37 comprising the control group. Achievement of the primary endpoint occurred in 22 MTAC patients (91.7%) compared to 1 control patient (2.7%) ($p<0.001$). The difference in the incidence of hospitalization and change in LVEF were not found to be statistically significant between the groups. No deaths occurred in either group.

Enrollment in a pharmacist-led medication titration clinic was associated with a statistically significant increase in the achievement of target or maximally tolerated doses of quadruple GDMT. Further studies are needed to better understand the impact of MTAC enrollment on clinical outcomes.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of Pharmacist-Led Trough vs AUC-Guided Vancomycin Dosing and Monitoring in Adult Patients: Implementation at a Community Hospital

Author: Hamna Imtiaz

Primary Preceptor: Alexis Kasniunas

Institution: Rush Copley Medical Center

Abstract:

Purpose: In 2019, the Center for Disease Control and Prevention (CDC) published "Antibiotic Resistance Threats in the United States" and labeled methicillin-resistant Staphylococcus aureus (MRSA) in the category "Serious Threat". This report further detailed the continued threat of antimicrobial resistance with 323,700 estimated cases of MRSA treated in hospitalized patients in 2017. The following year, updated vancomycin guidelines were published recommending therapeutic monitoring utilizing area-under-the-concentration curve (AUC) for serious infections due to MRSA. Our plan is to implement an AUC monitoring initiative in our community hospital's medical surgical floors. The objective of this initiative is to compare the safety and efficacy of trough-based monitoring (pre-implementation) vs AUC-based monitoring (post-implementation) of vancomycin in patients with serious MRSA infections such as pneumonia, osteomyelitis, bacteremia, and endocarditis.

Methods: All patients are eligible if they receive vancomycin for at least 48 hours. We will utilize our electronic medical record to retrospectively review charts from January 1, 2022 to May 31, 2023. Measured outcomes for efficacy and safety will include the following: incidence of acute kidney injury, total days of inpatient vancomycin therapy, and total exposure to vancomycin during hospitalization. AUC calculations will be performed using the Bayesian software PrecisePK with the goal AUC of 400-600 mg*hr/L.

Results: Microsoft Excel will be used for our data analysis. The primary outcome, the incidence of nephrotoxicity, will be analyzed using Student's t-test. The baseline characteristics of the subjects will be analyzed using the Chi-squared test. Secondary outcomes that are continuous variables, including total days of therapy and exposure to vancomycin, will be analyzed using Mann-Whitney U. Data collection is still in process.

Conclusion: The clinical implication of comparing the incidence of nephrotoxicity in patients with

severe MRSA infections using trough vs AUC-based methods may help further guide appropriate target pharmacokinetic/ pharmacodynamic (PK/PD) monitoring.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the impact of an HIV prevention training course on pharmacist readiness to prescribe pharmacy-based HIV Pre-Exposure Prophylaxis (PrEP) services aimed at increasing patient access to care

Author: Analisa Iole

Primary Preceptor: Chandni Clough

Institution: Jewel – Osco Pharmacies

Abstract:

Background and Objectives:

Illinois has recently expanded the scope of the pharmacist to include prescribing of HIV PrEP medications. The primary objective of this study is to assess the difference in pharmacists' knowledge and readiness to prescribe HIV PrEP medications before and after completing a live educational course. The secondary objectives of this study include evaluating pharmacists' baseline knowledge of PrEP medications relative to demographic and educational factors and understanding pharmacists' interest in completing this course in a live format.

Methods:

This study will assess the difference in pharmacists' knowledge and readiness to prescribe HIV PrEP medications before and after completing a live educational course. Approximately 120 pharmacists employed by a national supermarket-based community pharmacy chain who are licensed and practicing in the state of Illinois at locations that are planning to implement PrEP prescribing in 2023 will be included. Each participant will be asked to complete a survey and pre-test prior to attending a live training course covering an overview of HIV, PrEP, and prescribing practices in the form of a slide deck presentation. After attending, participants will be asked to complete a second survey and knowledge assessment. This survey will include the same questions as the first survey. It will also contain questions that assess participants' opinions on the course overall as well as readiness to prescribe PrEP.

Results:

This study is currently in progress.

Implications and Conclusions:

This study is currently in progress and seeks to determine community pharmacists' baseline knowledge of HIV and PrEP prescribing practices, the impact of a live educational course, and help to standardize pharmacist training.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Reduced Dosing Strategies Compared to Conventional Dosing for Therapeutic Enoxaparin in Critically Ill Patients

Author: Hannah Jenkins

Primary Preceptor: Poorvi Shah

Institution: Advocate Christ Medical Center and Advocate Children's Hospital

Abstract:

When using currently approved therapeutic dosing for enoxaparin, patients with renal impairment, elderly patients, or critically ill may have a higher bleeding risk due to drug accumulation. Several studies have demonstrated that standard dosing with moderate renal impairment led to supratherapeutic anti-Xa levels and increased risk of bleeding. Critically ill patients may appear to have normal kidney function based on labs, however drug clearance may be reduced due to various factors. The purpose of this study is to compare the percentage of low molecular weight anti-Xa levels within therapeutic range in critically ill patients who received reduced versus conventional dosing of therapeutic enoxaparin.

This study is a single-center, retrospective chart review that includes 93 patients admitted to intensive care units and step-down units who received treatment dose enoxaparin with at least one low molecular weight heparin (LMWH) anti-Xa level obtained. Exclusion criteria is defined as patients under the age of 18, pregnancy, creatinine clearance less than 30 mL/min or any form of dialysis, patients without anti-Xa level obtained during treatment, anti-Xa levels that were drawn inappropriately, and the use of prophylactic dosing of enoxaparin. A list of patients in the intensive-care units at Advocate Christ Medical Center with anti-Xa levels obtained while receiving therapeutic enoxaparin dosing between November 1st, 2020 and August 1st, 2022 was generated and de-identified. Data includes patient demographics, renal function, enoxaparin dosing regimen, LMWH anti-Xa levels, and documentation of bleeding events. The primary outcome is the percent of anti-Xa levels within therapeutic goal (0.5-1.1 IU/mL). Secondary outcomes include the percent of anti-Xa levels outside of goal (less than 0.5 IU/mL or greater than 1.1 IU/mL) and the rate of significant bleeding events (including major and minor bleeding events as defined by the TIMI criteria and patients with a documented bleeding site requiring blood transfusion(s)).

Results in progress.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: A comparison of anticoagulation strategies in patients with intra-aortic balloon pumps

Author: Kevin Johns

Primary Preceptor: Bryan Menich

Institution: Rush University Medical Center

Abstract:

An intra-aortic balloon pump (IABP) is a temporary mechanical circulatory support device that generates volume displacement in the aorta and reduces afterload. This shift in blood volume ultimately results in the augmentation of cardiac output in patients with refractory cardiogenic shock. Despite its benefits, IABPs have been associated with complications such as limb ischemia, leading to the common practice of therapeutically anticoagulating patients with unfractionated heparin. However, there is a lack of sufficient evidence and no definitive guidelines to demonstrate the benefits or direct the use of anticoagulation in these patients. Previous research has concluded that a systemic heparin infusion does not reduce thrombotic outcomes and may result in greater risk of bleeding. An additional study demonstrated that patients managed with an IABP perioperatively without systemic heparin had thrombotic complications at a rate similar to historical controls.

The purpose of this study is to further evaluate anticoagulation therapy in patients with an IABP to determine if there is a difference in the incidence of thrombotic and bleeding outcomes in those receiving therapeutic anticoagulation compared with those not receiving therapeutic anticoagulation. This is a single-center, retrospective, observational cohort study. Adult patients with an IABP placed at Rush University Medical Center from January 2019 through September 2022 and were maintained on support for at least 48 hours were included. Patients placed on extracorporeal membrane oxygenation (ECMO), pregnant women, those with a separate indication for anticoagulation, and those with a baseline coagulopathy were excluded. The primary outcome of this study is the number of thrombotic outcomes during IABP placement including stroke, pulmonary embolism, deep vein thrombosis, limb ischemia, or device thrombosis. Secondary outcomes include the incidence of access and non-access site bleeding, major bleeding, ICU and hospital length of stay, and in-hospital and 28-day mortality. The study results and conclusion are in progress.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Incidence of uncontrolled hyperphosphatemia in dialysis patients receiving phosphate binder therapy

Author: Kristina Karapetyan

Primary Preceptor: Aeman Choudhury

Institution: VA - North Chicago, IL - Captain James A. Lovell Federal Health Care Center

Abstract:

End-stage renal disease (ESRD) is the final permanent phase of chronic kidney disease (CKD) associated with multiple complications such as anemia, mineral and bone disorders (MBD), and coronary heart disease. Hyperphosphatemia is one of the most common complications of MBD and is associated with a high risk of cardiovascular events. Although guidelines provide specific phosphate level recommendations, most patients do not reach this goal and the occurrence of hyperphosphatemia remains high. In order to keep phosphorus levels controlled, phosphate binder therapy is commonly utilized. Currently, at the Captain James A Lovell Federal Health Care Center (FHCC) there are numerous ESRD patients who get dialysis sessions outside of the VA as this facility does not have a designated dialysis center. However, many of these patients still receive phosphate binders from FHCC. Therefore, phosphate binder therapy monitoring becomes challenging and there is a high risk of patients developing hyperphosphatemia without proper monitoring procedures. The objective of this study is to examine prescribing patterns of phosphate binders at the FHCC including what phosphate binder are commonly initiated and clinical services that prescribe them, and assess what is the incidence of uncontrolled hyperphosphatemia in ESRD patients who receive phosphate binders from the FHCC but get hemodialysis outside of this facility. This project is a retrospective chart review study. Patients' charts in Computerized Patient Records Systems (CPRS) will be reviewed to collect data. The primary outcome is the incidence of hyperphosphatemia defined as the phosphorous level >5.5 mg/dL. Some of the secondary outcomes include presence of outpatient phosphate level monitoring prior and after initiation of phosphate binder, death due to cardiovascular causes , and documented side effects associated with phosphate binder use. The primary and secondary outcomes will be assessed by utilizing descriptive statistics. Data collection and analysis are in progress.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of pharmacy technician training standards and development of an accredited pharmacy technician training program within a community health-system

Author: Sakhi Kaur

Primary Preceptor: Jeffrey Thiel

Institution: NorthShore University HealthSystem

Abstract:

Purpose: Pharmacy technicians are an integral part of the pharmacy team who help ensure safe and effective delivery of medications to the patients. In order to be eligible to become certified and continue working as a technician, registered technicians have the option to either be trained on the job or complete a training course. Beginning January 1st, 2024, any person starting a career as a pharmacy technician will be required to complete an ASHP/ACPE accredited training program in order to be eligible to take the PTCB certification exam. It is imperative for health-systems to identify or establish robust accredited training programs to ensure proper training and staffing following the new law. The purpose of this project is to evaluate the pharmacy technician training standards and develop an ASHP/ACPE accredited pharmacy technician training program at the community health-system.

Methods: A team of pharmacy administrators, and a pharmacy resident was created to oversee this project. The project plan was divided into two phases; phase one was to identify the most feasible route for the organization to fulfill the requirement. It included clarifying the nuances of the law, collaborating with leaders from other health-systems, and understanding the administrative, financial and staffing implications of each option. Phase 2 will be to implement the groundwork for the selected route. It will focus on establishing an accredited program in-house including building the curriculum, applying for accreditation, hiring project manager and coordinator for continuous oversight of the program, building a robust program structure with regular enrollment and retention strategies for the graduates of the program. Several workflow metrics will be collected and analyzed post-implementation to fine-tune the program.

Results/Conclusion: In-progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Inpatient Pharmacy Operations: Implementation of the Decentralization Model in Inpatient Pharmacy at Jesse Brown VA Medical Center

Author: Hanan Khadra

Primary Preceptor: Jennifer Lee

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Purpose: The field of pharmacy is rapidly evolving and moving towards a comprehensive, team-based, patient-centric care. The ASHP Practice Advancement Initiative 2030 advocates for advancing the profession and integrating pharmacists into multidisciplinary teams to increase patient access to pharmacists across all healthcare settings. Over the last nine fiscal years, the VA health system has seen an increase in clinical pharmacist encounters and interventions. The top three pharmacist interventions include discharge counseling, medication reconciliation, and therapeutic drug monitoring. At the Jesse Brown VA Medical Center (JBVAMC), the Inpatient Pharmacy currently employs a staffing model that is mostly based on centralized operations. Pharmacist integration in multidisciplinary teams is scheduled on a monthly basis and is not standardized across all medical teams each month. Additionally, the FY22 All Employee Survey (AES) results demonstrated that pharmacists' priorities for FY23 were accountability, workload, and growth. The purpose of this Quality Improvement (QI) project will be to evaluate the current Inpatient Pharmacy Operations and to propose a transition towards a decentralized model to promote health equity among services, provide opportunities for growth, and optimize overall patient health outcomes by advancing clinical pharmacy practices.

Methods: This QI project outlines a descriptive analysis of the current Inpatient Pharmacy model at JBVAMC. The analysis will evaluate pharmacy operations and workflow by assessing current staffing and rounding schedule, current number of Inpatient Pharmacy employees, needs of collaborating services, and FY22 AES results.

Results: The results of this QI project will advocate for the decentralization of Inpatient Pharmacy to support expansion of clinical pharmacy services based on best practices. Implementation of a decentralized pharmacy model will allow pharmacists to contribute to interdisciplinary teams, optimize patient care outcomes, and decrease the risk for medication errors on a standardized and consistent level. Results and conclusion will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparing Outcomes of Standard versus Reduced Dose Apixaban or Rivaroxaban for Extended Treatment of Venous Thromboembolism

Author: Samiha Khan

Primary Preceptor: Marissa Mahoney

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Venous thromboembolism (VTE), consisting of deep vein thrombosis (DVT) and pulmonary embolism (PE), affects approximately 900,000 patients annually in the US, and a third of these patients will have a recurrence within 10 years. After initial treatment, the 2021 CHEST Guidelines recommend considering extended anticoagulation in patients with unprovoked VTE or provoked by a persistent risk factor.

Two pivotal trials have examined the utility of reduced dosing of direct oral anticoagulants (DOACs) for long-term prophylaxis: Apixaban for Extended Treatment of Venous Thromboembolism (AMPLIFY-EXT) and Rivaroxaban or Aspirin for Extended Treatment of Venous Thromboembolism (EINSTEIN CHOICE). These studies concluded that extended anticoagulation with reduced dose apixaban or rivaroxaban reduced the risk of recurrent VTE without increasing the rate of major bleeding. The Jesse Brown VA Medical Center (JBVAMC) has since incorporated DOAC dose reductions 6-12 months after VTE for certain patient populations.

Purpose: This retrospective chart review will assess the efficacy and safety outcomes of patients on extended anticoagulation with standard versus reduced doses of apixaban or rivaroxaban at JBVAMC since implementation of the reduced dosing guidance.

Methods: The study includes patients prescribed at least 6 months of standard dose apixaban or rivaroxaban followed by at least 6 months of extended anticoagulation between March 1, 2020 and March 1, 2022. Patients are then divided into 4 study arms based on anticoagulant (apixaban vs. rivaroxaban) and dosing (full vs. reduced dose) and matched in a 1:1:1:1 ratio. The primary efficacy outcome is recurrent VTE (defined as fatal and nonfatal PE and DVT) or death from any cause between 0-6 months, and the primary safety outcome is major bleeding between 0-6 months. Secondary outcomes include recurrent VTE or VTE mortality, non-major bleeding, and composite bleeding outcomes (major + non-major).

Results: will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Outcomes Following Implementation of Upgraded Diabetic Ketoacidosis Protocol at a Community Hospital

Author: Ellisa Kim

Primary Preceptor: Alexis Kasniunas

Institution: Copley Medical Center

Abstract:

Purpose: Diabetic ketoacidosis (DKA) is a metabolic emergency of diabetes, affecting 30 million people in the United States. The 2009 American Diabetes Association (ADA) outlines the medical management of DKA which includes proper fluid administration, electrolyte monitoring and replacement, and insulin therapy. The proper initial treatment of DKA reduces complications such as hypokalemia, hypoglycemia, and cerebral edema. The DKA Emergency Department (ED) order set at Rush Copley Medical Center is updated to align with current guidelines. The objective of this initiative is to assess outcomes before and after implementing the new ED order set for patients diagnosed with DKA.

Methods: This is a single center, retrospective chart review evaluating the treatment process in patients 18 years and older diagnosed with DKA in the ED. The pre-implementation period of the ED order set is defined from September 1, 2021- October 31, 2022 and post implementation period is defined as the day the updated order set is implemented. The primary outcome of this study is adherence to the DKA order set in the ED. Secondary outcomes included length of stay, the time to close anion gap, and the incidence of hypokalemia and hypoglycemia in the ED and ICU.

Results: Patient demographics and clinical variables will be described using proportions for categorical data and medians for continuous data. For statistical analysis, chi-squire data will analyze categorical variables and two-sided T-test will analyze continuous data. 68 patients are included in the pre-implementation analysis. Post implementation data collection is still pending.

Conclusion: The clinical implications from this study may optimize adherence to the ED DKA order set and improve patient outcomes.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The Effect of Zoledronic Acid and Pamidronate on Renal Function

Author: Katherine Koss

Primary Preceptor: Melissa Kocek

Institution: Rush University Medical Center

Abstract:

Hypercalcemia has many etiologies with hyperparathyroidism and malignancy as the most prevalent. Hypercalcemia can affect multiple organ systems. Normal serum calcium levels are 8 to 10 mg/dL with normal ionized calcium levels of 0.95-1.32 mmol/L.

The recommended treatment for hypercalcemia includes intravenous (IV) fluids and bisphosphonates. Bisphosphonates work by inhibiting osteoclast action and bone resorption, with pamidronate (Aredia) and zoledronic acid (Zometa) as the recommended bisphosphonates by the 2023 Endocrine Society Hypercalcemia Guidelines. While bisphosphonates are the mainstay of treatment for hypercalcemia, they can be nephrotoxic.

Rush University Medical Center (RUMC) guidelines recommend use of zoledronic acid, since studies have demonstrated superior efficacy compared to pamidronate, for treating hypercalcemia; however, there is a lack of literature for treating hypercalcemia in individuals with a creatinine clearance (CrCl) less than 30 mL/min. Many RUMC clinicians question whether denosumab (Prolia) would be an option, but denosumab is non-formulary and more costly.

This single center, retrospective cohort study will evaluate orders for zoledronic acid and pamidronate infusions from June 1st, 2020 through June 1st, 2022. The primary outcome of this study will assess the incidence of acute kidney injury (AKI) within seven days of receiving zoledronic acid or pamidronate defined as an increase in serum creatinine (SCr) of ≥0.3 mg/dL within 48 hours or an increase of SCr ≥1.5 times baseline within seven days per Kidney Disease Improving Global Outcomes (KDIGO) guideline criteria. Orders placed will be identified through the EPIC electronic medical record. Separate sub-group analyses will include the incidence of AKI on days 1, 2, 3, 4, 5, 6, and 30 (+/- 7 days) post zoledronic acid or pamidronate administration. Safety will be assessed by determining incidence of hypocalcemia (<8.5 mg/dL), hypophosphatemia (<2.5 mg/dL), or fever (≥ 100.4°F) 24 hours post infusion.

Results and conclusions of this project are in process.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Analgesic Order Set Optimization to Increase Compliance with The Joint Commission Standards for Therapeutic Duplication at an Urban Academic Medical Center

Author: Kelsey LaMartina

Primary Preceptor: Lauren Endriukaitis

Institution: Northwestern Memorial Hospital

Abstract:

The Joint Commission (TJC) Standards for Medication Management (MM) include pharmacists' review of medication orders for therapeutic duplication. Therapeutic duplication of as-needed (PRN) analgesics increases risk of respiratory depression, nephrotoxic effects, hepatotoxic effects, physical dependence, and other adverse drug reactions. While TJC does not prohibit therapeutic duplication, clarity must be sought to determine when one agent should be administered over another, if both agents are to be given concurrently, or if one therapy was to replace an existing therapy and was not appropriately discontinued. The purpose of this study is to determine if analgesic order set optimization alone is sufficient to meet >90% compliance with TJC standards for therapeutic duplication.

A single-center retrospective pre/post study will be conducted using two independent cohorts admitted to medical and surgical floors at Northwestern Memorial Hospital over one month before (August 2022) and after (November 2022) the release of an optimized adult analgesic order set on September 30th, 2022. Medication orders that triggered a Physician Therapeutic Duplication Alert for opioid analgesics were included. Patients in the post-acute and comfort care settings will be excluded. Data will be collected via Epic EHR. The statistical analysis will be completed using IBM® SPSS® Statistics and chi-squared test of independence for the primary outcome and descriptive statistics for secondary outcomes.

The primary outcome is the change in prevalence of true therapeutic duplication pre- to post-optimization with a goal of ≤10% for post-optimization. True therapeutic duplication will be defined as having the same PRN reason without clarification of when to give one medication or dose over the other. Secondary descriptive outcomes include the route of administration, PRN reason, order set, ordering provider, ordering provider specialty, and patient department. Data collection and analysis is currently in progress.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Antibiotic utilization trends in Veterans Affairs patients with Stenotrophomonas maltophilia bloodstream infections

Author: Clara Lee

Primary Preceptor: Ursula Patel

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Purpose: Stenotrophomonas maltophilia is a multidrug resistant gram-negative bacillus that is a threat to susceptible patient populations, including the immunocompromised or those who are exposed to broad-spectrum antibiotics. Despite the potential for its pathogenicity, there is a paucity of scientific evidence on antimicrobial treatment options and their effectiveness. The Infectious Diseases Society of America (IDSA) antimicrobial resistant (AMR) guidance provides information on potential treatment options for S. maltophilia infections. However, the guidance also notes that there is insufficient data and conflicting results in published studies to recommend a 'standard-of-care' therapy. The goal of this study is to establish trends in treatment of S. maltophilia bloodstream infections (BSI) using national Veterans Affairs (VA) data.

Methods: This will be a national VA, retrospective cohort study within a 9-year timeframe from 2012 to 2021. Eligible subjects will consist of all veterans ages 18 years or older who had at least one positive blood culture for S. maltophilia within the VA Health System. The VA national microbiology, pharmacy, and encounter data sources will be utilized to collect culture data and antibiotics administered. Treatment strategies will be described by antibiotic agents selected and whether monotherapy or combination therapy was implemented.

Results/Conclusion: Results and conclusions to be presented at the conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Assessing the Utilization of Anti-Factor Xa Monitoring in Special Populations

Author: Natalie Lee

Primary Preceptor: Neil Schroeder

Institution: Northwestern Medicine Central DuPage Hospital

Abstract:

Enoxaparin is a low molecular weight heparin (LMWH) product used for the treatment of venous thromboembolism (VTE). LMWHs are fully absorbed from subcutaneous tissue, and absorbed more slowly with increased adipose tissue, increasing risk for over anticoagulation. Pharmacokinetic and pharmacodynamic properties of enoxaparin may be altered in obese patients due to different proportions of lean body mass to adipose tissue and altered drug distribution in pregnant patients. Obese and pregnant patient populations may be at higher risk of adverse events during anticoagulation therapy and may benefit from anti-Xa monitoring.

This is a single-center retrospective chart review at a 408-bed community hospital between January 2017 through October 2022. The review included all adult patients (over the age of 18), categorized as obese (BMI ≥ 40kg/m2 or total body weight >120kg) or pregnant, and who received treatment doses of enoxaparin with subsequent anti-Xa levels. All data will be analyzed and reported using descriptive statistics.

The purpose of this study is to analyze the need to establish monitoring standards within these special patient populations who receive therapeutic doses of enoxaparin. The evaluation of laboratory monitoring and dose adjustments will lead to a pharmacist-led protocol for enoxaparin anti-Xa monitoring in pregnant patients and patients with obesity in order to improve clinical outcomes.

Patients meeting inclusion criteria were included in the chart review. Data analysis is in process.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of a Smart Infusion Pump Education Program within a Multi-Site Health System

Author: Shinae Lee

Primary Preceptor: Jae Shin

Institution: NorthShore University HealthSystem

Abstract:

Purpose

Smart infusion pumps equipped with dose-error reduction software (DERS) improve the safety of using the infusion pumps, as they are programmed with drug libraries and pre-defined dosing parameters. Although the smart pumps are highly utilized, the surveys from the Institute for Safe Medication Practices (ISMP) showed that the nurses experience alerts and errors while using the pump. In April of 2021, the Joint Commission (TJC) sentinel event alert article provided recommendations for safe smart infusion pump utilization. One of the recommendations is to train and assess competency of all clinical staff who utilize the smart infusion pumps. The purpose of this project is to develop a method to conduct annual staff training and assessment on the proper use of the pumps, and educate on the risks of overriding alerts.

Methods

This project is exempt from the Institutional Review Board as it is a quality improvement project. A gap analysis was completed based on the TJC sentinel event alert. Based on this analysis, an opportunity to enhance the training for all staff who utilize smart infusion pumps was identified. The primary objective is to implement an annual training and conduct competency assessments for all smart pump users. An interdisciplinary team consisting of pharmacists and nurses was created to discuss the content and possible delivery methods for the annual education and assessment. Initial pump orientation materials would be utilized for the annual education. Review of the highlights and important points of the education would be used for the annual competency. The final content and delivery method will be presented to a multisite nursing committee for approval. The interdisciplinary team will implement the education and competency assessment.

Results

Pending

Conclusions

Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Development of a Continuous Glucose Monitoring Program at Discharge from an Inpatient Setting

Author: Sun Min Lim

Primary Preceptor: Rani Rajagopalan

Institution: Advocate Good Shepherd Hospital

Abstract:

Introduction: Continuous glucose monitoring (CGM) has shown clear benefits for monitoring and maintaining glycemic control in outpatient settings. Providing CGM sensors upon discharge from the hospital may provide earlier access to these tools that can help achieve optimal glucose control.

Objectives: The purpose of our study is to assess the existing CGM discharge programs at Advocate Health and to determine a standardized process to facilitate initiation of CGM at the time of hospital discharge.

Methods: CGM discharge programs at two Advocate Health sites were reviewed. Chart review of patients who received CGM sensors was performed to examine the CGM discharge process starting from patient selection up until post-discharge follow-up visit.

Results: Upon reaching out to current CGM discharge programs, it was discovered that tracking of CGMs was not consistently occurring or being documented. In addition, a consistent workflow for facilitating provision of CGM was lacking. To maximize CGM features and benefits that have been shown in outpatient studies, we identified critical elements for a discharge program including identifying the appropriate patient population, establishing consistent documentation in the medical record, providing thorough education, and ensuring follow-up with a care team equipped to pull and utilize data from CGM. A template was created to facilitate documentation in the medical record.

Conclusions: Current CGM discharge programs at Advocate Health do not have consistent workflow or documentation processes to allow for tracking patients who receive CGM. We have identified three main areas to focus to develop standardized process, which include patient identification, education, and follow-up. As these steps become incorporated in the workflow, future studies should evaluate patients' blood glucose 3 to 6 months post-discharge to assess the effectiveness of CGM discharge programs.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Transition from Dexmedetomidine to Enteral Clonidine or Guanfacine for Sedation in the Intensive Care Unit

Author: Shujie Lin

Primary Preceptor: Basirat Gbemikaiye

Institution: Mount Sinai Hospital Medical Center

Abstract:

Purpose: Mechanically ventilated patients frequently require sedation to alleviate anxiety, pain, and improve synchronization with the ventilator. Use of dexmedetomidine for sedation in mechanically ventilated patients is supported by the 2018 Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption guideline and is a common practice in the Intensive Care Unit (ICU) at Mount Sinai Hospital. However, prolonged use of dexmedetomidine is associated with adverse effects including hypotension and bradycardia as well as a high-cost burden. This study aims to compare the efficacy and safety of transitioning from dexmedetomidine to an enteral alpha 2 agonist such as clonidine or guanfacine versus weaning off dexmedetomidine alone.

Methods: This retrospective study will review the electronic medical records of patients admitted to the ICU receiving dexmedetomidine infusion and at least one dose of oral clonidine or guanfacine for sedation if in the transition group. Patients will be excluded if they are pregnant, prisoners, diagnosed with COVID-19, treated for alcohol or benzodiazepine withdrawal, have refractory seizures, or are enrolled in an organ donation program. Baseline demographic information including age, gender, weight, co-morbidities, admission diagnoses, baseline Behavioral Pain Scale, Richmond Agitation-Sedation Scale, and Confusion Assessment Method for the ICU will be collected. Also, data regarding the dose and duration of dexmedetomidine infusion, dose and duration of clonidine or guanfacine, proportion of patients weaned off dexmedetomidine within 24, 36, and 72 hours, adjunctive medications used when weaning off dexmedetomidine infusion, incidence of hypotension, bradycardia, and delirium will be evaluated. Descriptive statistics will be used to analyze the results. The results of this study will facilitate the development of a guideline to aid providers in making a successful transition from dexmedetomidine infusion to enteral alpha 2 agonists.

Results: Work in progress

Conclusions: Work in progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: COMPREHENSIVE MEDICATION REVIEWS AND THEIR IMPACT ON PATIENT CARE

Author: Amy Liu

Primary Preceptor: Marlowe Djuric Kachlic

Institution: University of Illinois at Chicago College of Pharmacy

Abstract:

Objectives:

The objective of this study is to analyze the impact of comprehensive medication reviews (CMR) and their effect on patient care in patients who obtained a CMR and pharmacy services in one location compared to patients who obtained a CMR and pharmacy services in different locations. When conducting a CMR, there are multiple advantages that the Outpatient Clinical Pharmacy Services (OCPS) team has including access to the chart, full integration in the health system, etc. Provided those advantages and the continuity of care between CMR and pharmacy services may lead to better outcomes for patients. Overall, this study will analyze the effect of CMRs in patients who also obtain their prescriptions where the CMR is completed compared to patients who do not.

Methods:

Utilizing the third-party medication therapy management (MTM) platform used at the University of Illinois Health (UI Health) pharmacies, OutcomesMTM®, patients who have successfully conducted a CMR with a member of the OCPS team will be identified. The primary outcomes are patients' A1c, blood pressure, and readmission 6 months prior to and after completing a CMR. Secondary outcomes are number of office visits to specialists and/or primary care physicians within UI Health. Information will also be gathered utilizing patient's electronic medical record.

Results:

Descriptive statistics will be used to analyze the data for the primary and secondary outcomes. Data for percent of patients who were readmitted will be reported as a proportion of total patients from each group. The outcomes of each group will be compared using a chi-squared test.

Conclusions:

The analysis of these results will uncover that the interventions of the OCPS team help improve patient outcomes when the patients fill their prescriptions at the pharmacy where the CMR originated. This data can help quantify the importance of CMRs and where they are conducted.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Timing to Appropriate Antibiotic Therapy in Bloodstream Infections and the Role of Rapid Diagnostic Testing in Clinical Guidance

Author: Paden Long

Primary Preceptor: Sergio Villicana

Institution: Franciscan Health

Abstract:

Evaluation of Timing to Appropriate Antibiotic Therapy in Bloodstream Infections and the Role of Rapid Diagnostic Testing in Clinical Guidance

Paden Long, PharmD, Sergio Villicana, PharmD, BICDP, AAHIVP

Purpose:

Bloodstream infections are responsible for a considerable amount of illness and death worldwide. Proper culture and sensitivity results are key to identifying pathogens and choosing appropriate therapy. Quick responsiveness to culture results is vital to prevent patient mortality. Rapid diagnostic testing tools are available to identify resistance genes on pathogens to quickly identify resistant organisms that require therapy modification. This study aims to identify the responsiveness of institutions to appropriate antimicrobial therapy after a positive blood culture result.

Methods:

This was an IRB approved retrospective chart review of positive blood culture results collected prior to and after integration of rapid diagnostic testing for identification of pathogens and resistance genes. Patients were included in the study if they were 18 years or older with a positive blood culture with organisms and susceptibilities identified. Patients with initial blood cultures drawn after antibiotic administration, without susceptibility results or repeat cultures available, or had a result documented as polymicrobial or contaminant were excluded. The primary outcome was time to appropriate antimicrobial therapy administration before and after integration of rapid diagnostic testing.

Results/Conclusion:

Results and conclusion are currently pending and will be presented at the conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of Weight-Based Dosing Versus Fixed Dosing of TAC-LCP in Renal Transplant Recipients

Author: Nida Madni

Primary Preceptor: Lance Lineberger

Institution: Rush University Medical Center

Abstract:

As the number of renal transplants in the US is growing, there is a need for impactful studies that investigate optimization of post-transplant care. Post-transplantation care requires many immunosuppressants, with one of the most commonly used immunosuppressants being tacrolimus. Tacrolimus exhibits an improved pharmacokinetic profile by exhibiting decreased trough and peak fluctuations. This study focuses on the time to therapeutic trough and the impact on patient outcomes between two TAC-LCP dosing strategies: a weight-based dosing or a 4 mg fixed dosing strategy. We hypothesized that the TAC-LCP weight-based dosing will achieve a faster time to therapeutic trough in comparison to the fixed dosing strategy.

This retrospective, single-center, observational cohort study evaluated adult renal transplant recipients who presented to Rush University Medical Center (RUMC) between January 2017 and September 2021. Renal transplant recipients received either a 4 mg fixed dose or a weight-based dose of 0.08 mg/kg (ABW +/- 1 mg) of TAC-LCP. The primary outcome analyzed is the time to therapeutic trough in de novo renal transplant recipients. Secondary outcomes include incidence of rejection, patient survival, and graft survival within 12 months of transplant; incidence of opportunistic infections (cytomegalovirus, pneumocystis pneumonia, BK virus) and allograft function. Results for this study are currently pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Antibiotics for Facial Fractures- Does Duration Matter?

Author: Alexa Maisenbach

Primary Preceptor: Andrew DeSio

Institution: Mount Sinai Hospital Medical Center

Abstract:

Purpose: The 2021 Surgical Infection Society Guidelines for Antibiotic Use in Patients with Traumatic Facial Fractures recommend withholding prophylactic antibiotics for all adult patients with facial fractures undergoing operative procedures beyond a single peri-operative dose. The use of antibiotics for penetrating facial fractures is not directly addressed by these guidelines. The objective of this study is to establish the baseline duration of antibiotic therapy for facial fractures at this Level I trauma center and determine if antibiotics are associated with a change in infectious outcomes, including surgical site infections in those with penetrating or blunt mechanisms of injury.

Methods: This is a retrospective cohort study of 265 patients, delineated by type of facial fracture, duration of antibiotics in each phase (pre-operative, peri-operative, and post-operative), and infectious outcomes. The electronic medical record will be used to identify patients who received intravenous (IV) ampicillin/sulbactam, the preferred antibiotic for facial fractures at this institution, during the specified time period. Patients who had plastic surgery consults for management of facial fractures will be identified. The following data will be collected: mechanism of fracture (penetrating or blunt), location of fracture, and antibiotics used in each time period. Patient demographics, including relevant social history (smoking, alcohol, or illicit drug use) will be collected to determine if any correlation exists with specific patient factors. Initial surgical approach (operative/conservative) will be collected. Time to surgery from initial presentation and total days of antibiotics will be calculated. Descriptive statistics will be used to analyze results.

Results: Work in progress

Conclusions: Work in progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Mental Health Hospitalization Rates and Long-Acting Injectable Antipsychotic Adherence Before and During the COVID-19 Pandemic: A Retrospective Review

Author: Antoinette Martin

Primary Preceptor: Anuja Vallabh

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Purpose: Patients with severe mental illness have increased rates of non-adherence to oral medications which may contribute to higher rates of psychiatric hospitalization, relapse, and higher medical costs. Research has shown use of long-acting injectable antipsychotics (LAIA) increase adherence and reduce psychiatric hospitalizations. There are a lack of studies evaluating the rate of severe mental health emergencies attributed to the COVID-19 pandemic and barriers to accessing medication. Though the Jesse Brown VA Medical Center (JBVAMC) continued to provide mental health services during this time, including medication administration, it is possible some patients may have experienced delays in care due to reduced psychiatric bed capacity or avoided seeking services altogether due to risks associated with the pandemic. It is the intent of this retrospective study to evaluate whether there was an association between the pandemic and the rate of LAIA adherence and mental health hospitalizations.

Methods: This study is a retrospective, electronic chart review of Veterans receiving a LAIA for schizophrenia, schizoaffective disorder, or bipolar disorder at the Jesse Brown VA Medical Center from February 1, 2018 – February 1, 2019 (pre-COVID period) or March 1, 2020 – March 1, 2021 (COVID-19 pandemic period). The following LAIAs are included in the study based on VA formulary: aripiprazole, fluphenazine decanoate, haloperidol decanoate, paliperidone palmitate, and risperidone. Patients will be reviewed for 12 months from the date of their first LAIA administration within the study period. The primary endpoint will be the percent of psychiatric hospitalizations pre-pandemic versus during the COVID-19 pandemic, with secondary endpoints comparing adherence, emergency room visits, suicidality, and need for catch-up dosing pre- and during the pandemic.

Results: The results will be included with the final presentation.

Conclusion: The conclusion will be included with the final presentation.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Impact of pharmacist educational intervention on antibiotic surgical prophylaxis prescribing habits and allergy documentation

Author: Alyssa Mason

Primary Preceptor: Anthony Phan

Institution: Advocate Good Samaritan Hospital

Abstract:

Impact of pharmacist educational intervention on antibiotic surgical prophylaxis prescribing habits and allergy documentation

Alyssa Mason, PharmD

PGY-1 Pharmacy Resident

Advocate Good Samaritan Hospital

Purpose:

Antimicrobial surgical prophylaxis is associated with high rates of prescription inappropriateness, mainly due to inaccurate patient allergy documentation and unintentional guideline deviation. Selection of second line agents for pre-procedural antimicrobial prophylaxis due to inaccurate allergy documentation promotes microbial resistance, increases risk of adverse drug reactions, and creates unnecessary institutionalized cost. The purpose of this study is to evaluate adherence to the AAH Adult Antimicrobial Surgical Prophylactic Guideline and AAH Approach to Beta-Lactam Allergies and Cross-Reactivity clinical resource by educating surgical providers, nurses, and pharmacists before and after educational intervention by a pharmacist.

Methods:

This retrospective observational study will evaluate providers adherence to antimicrobial surgical prophylaxis pre-educational intervention from October 2021 to December 2021 and post-educational intervention from October 2022 to December 2022. The primary endpoint is difference in adherence to the AAH Adult Antimicrobial Surgical Prophylactic Guideline and AAH Approach to Beta-Lactam Allergies and Cross-Reactivity clinical resource before and after educational intervention. Secondary endpoints include incidence of inappropriate allergy documentation, surgical site infection, and Clostridium difficile infection.

Results:

Results are pending.

Conclusion:

Conclusions are pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of a Fixed Dose Intensive Care Unit Fentanyl Infusion Protocol

Author: Joseph Mate

Primary Preceptor: Chelsey Fritzgerald

Institution: Decatur Memorial Hospital

Abstract:

Abstract (maximum 300 words)Proper pain control is a vital component of the intensive care unit liberation bundle (A-F) for ventilated patients in the ICU setting. Current guidelines recommend opioids such as fentanyl for pain management in the ICU setting. While opioids are effective in pain management, overtreatment has been associated with prolonged ventilator use, ventilator-associated pneumonia, and delirium. The purpose of this study is to compare safety and efficacy outcomes of a new fixed dosing fentanyl infusion protocol for mechanically ventilated patients in the ICU with the previous weight-based dosing protocol at a local hospital.

Adult patients that were ventilated and received an intravenous fentanyl infusion were eligible for this retrospective chart review. This new fentanyl infusion protocol calls for either fentanyl 25 or 50 mcg IV push based on professional judgement as needed for up to four doses to a goal CPOT of 2 or less before initiating a fentanyl infusion order. Once initiated, fentanyl infusions will be started at 25 mcg per hour, titrating by 10-25 mcg per hour every 10 minutes to a goal CPOT of less than 2. Max fentanyl infusion rates will be 250 mcg per hour. The previous weight based protocol will be used as a control to compare against the fixed dose fentanyl infusion protocol. For baseline patient characteristics, we will record gender, age, weight, height, body mass index, creatinine clearance, admission diagnosis, and baseline opioid use. We plan to record the ICU length of stay, mean ventilator days, mortality, percent of nursing shifts with a CPOT of less than 2, Richmond agitation sedation scale scores between -2 to +1, percent time nursing is compliant with protocols, mean amount of opioid used in fentanyl equivalents, mean amount of additional adjunct sedative agents, if patient received tracheostomy, and patients that developed ileus during inpatient stay.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Real-World Analysis Of The Extensive KEYNOTE-522 Protocol For Early Triple Negative Breast Cancer

Author: Douglas Mazewski

Primary Preceptor: Emily Armgardt

Institution: Northwestern Memorial Hospital

Abstract:

Background:

In the phase 3 KEYNOTE-522 trial, the addition of pembrolizumab to an extensive two-part treatment approach of neoadjuvant chemotherapy, followed by definitive surgery, and further adjuvant pembrolizumab in patients with early stage TNBC improved event free survival and led to higher pathologic complete response (pCR) rates but there were additional toxicities reported. The treatment regimen has not been evaluated in a real-world patient population at a single major academic medical center. Furthermore, the ability of patients to tolerate and complete this regimen has become a concern.

Methods:

A single center, retrospective, chart review, study performed at Northwestern Memorial Hospital, between February 2020 to October 2022 to analyze the safety and efficacy of the KEYNOTE-522 regimen. Patients will be included if they are aged 18-90 years old with stage II or III TNBC and have received at least one cycle of KEYNOTE-522. Exclusion criteria will be based off the KEYNOTE-522 exclusion criteria. The primary outcome is grade 3 or 4 adverse effects (AEs) and immune-related adverse effects (irAEs). Pertinent secondary outcomes include all grade AEs and irAEs, time to onset of AEs and irAEs, pharmacologic treatment required for AEs and irAEs, delays in therapy, and pCR rates. Continuous and categorical variables will be compared using Mann-Whitney U and Chi-squared or Fisher's exact test. All statistics will be performed using IBM SPSS statistics, version 26.0 and all data stored in REDCap.

Results:

The aim of the study is to include approximately 90 patients to assess safety and efficacy outcomes. Data collection is ongoing and results are pending, with an expected completion by March 2023.

Conclusion:

The interpretation of this study will provide clinicians with additional guidance into the management of patients with early TNBC receiving the KEYNOTE-522 regimen to minimize AEs and establish appropriate dose modifications while maintaining efficacy, including progression free and overall survival.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of diltiazem immediate versus extended release in sustaining acute rapid ventricular response rate control

Author: Andrew McInerney

Primary Preceptor: Kara Fifer

Institution: Advocate Christ Medical Center and Advocate Children's Hospital

Abstract:

Diltiazem, a non-dihydropyridine calcium channel blocker, is currently a guideline recommended rate control agent used in atrial fibrillation/flutter with rapid ventricular response (AF with RVR). Following an intravenous (IV) bolus dose, a maintenance regimen is typically initiated with oral or continuous infusion to maintain rate control. Amongst the oral options, data lacks in the comparison of immediate-release (IR) and extended-release (ER) formulations at maintaining rate control in the acute setting. The purpose of this study is to compare the sustained rate control between oral IR and ER diltiazem in patients presenting with acute AF with RVR after IV bolus diltiazem.

This is a retrospective, cohort study that will compare patients at our research site who received diltiazem IR versus ER formulation following successful rate control (HR <110) of AF with RVR with IV diltiazem bolus dose(s). Exclusion criteria includes patients who received electrical cardioversion or any other rate control or antiarrhythmic medication in the Emergency Department (ED) prior to diltiazem (including patients on continuous infusion diltiazem), suspected alcohol or drug withdrawal, an inability to tolerate oral medications, or if pregnant or incarcerated. A list of patients that received diltiazem IV bolus dose(s) in the ED will be generated using EPIC Slicer Dicer. Eligible patients will be separated into those who received IR or ER diltiazem after IV bolus. The primary outcome will be sustained rate control defined as no more than one documented heart rate ≥ 110 beats per minute within 6 hours of oral diltiazem administration. Secondary endpoints will include doses given, need for repeat dosing or electric cardioversion, and need for hospital admission. Additional data points that will be collected include home cardiac medications, timing and dosing of study medications, primary and secondary diagnoses, and patient disposition.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Combination Therapy with Acetaminophen and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) Versus NSAID Monotherapy for Refractory Treatment of Patent Ductus Arteriosus (PDA) Closure in Preterm Neonates

Author: Emily McTish

Primary Preceptor: Deborah Bondi

Institution: University of Chicago Medicine

Abstract:

Purpose

The purpose of this study was to evaluate short- and long-term efficacy and safety outcomes of combination therapy (acetaminophen [APAP] and non-steroidal anti-inflammatory drugs [NSAIDs]) compared to NSAID monotherapy for patent ductus arteriosus (PDA) closure refractory to initial medical management in preterm neonates.

Methods

This was a retrospective, single-center study comparing outcomes in neonates 32 weeks gestational age or less who received a second treatment course for PDA with APAP in combination with NSAIDs (COMBO) or NSAIDs alone from July 1, 2016 through June 30, 2022.

Results

A total of 36 infants were included for analysis with 9 subjects in the COMBO group and 27 subjects in the NSAID only group. Subjects were a median of 15 and 19 days old at initiation of their second PDA treatment course. A non-significant higher incidence of PDA closure was seen in the COMBO versus NSAIDs group (33% vs 19%, respectively; p = 0.38). Numerically less infants in the COMBO group received additional pharmacologic treatment of PDA (22% vs 41%, respectively; p=0.44). Reduction in diameter of the PDA was non-significantly improved in the COMBO group (median 1.2 vs 0 mm reduction; p=0.06) for subjects which this outcome was available. There was no difference in need for surgical ligation (33% vs 26%). No difference was noted in the combined outcome of death or bronchopulmonary dysplasia, or other safety outcomes.

Conclusion

COMBO treatment resulted in a non-significant improvement in PDA closure, reduction in PDA size, and need for re-treatment of PDA. There was no difference in long-term outcomes such as need for surgical ligation or the combined outcome of death or BPD. No differences were noted in safety outcomes. While this study is small, it supports that COMBO therapy at least appears safe as an option for PDA closure refractory to first-line medical treatment.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Standardizing Concentrations and Titration Parameters in a Health System

Author: Renz Paulo Melicor

Primary Preceptor: Lisa Patel

Institution: NorthShore University HealthSystem

Abstract:

The American Society of Health System Pharmacists (ASHP) Standardize 4 Safety initiative aims to standardize intravenous and oral medication concentrations nationally. The goal of the initiative is to reduce potential medication errors especially in transitions of care, simplify ordering for providers, and limit inconsistencies in operations. This community health system has recently expanded to add two hospitals from the local region to the existing system. The purpose of this project is to standardize medication orders of intravenous medications among six hospitals with within this multi-hospital community health system.

Methods:

This was a quality improvement project and is exempt from Institutional Review Board approval. The first step in the standardization process was a comparison and reconciliation of the medication concentrations recommended in Standardize 4 Safety with each of the six hospital sites. Each medication was reviewed for compliance with Standardize 4 Safety and recommendations were made based on current concentrations, availability of commercially available products, and usage. A pharmacy taskforce was assembled with representatives from each hospital site for consensus. Each recommendation was shared with medical divisions and quality committees for approval. Implementation of changes will include education to staff and updates to medications orders, policies, and infusion pumps.

Results: Pending

Conclusion: Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The effect of continuous insulin infusion dosing strategies on severe hypertriglyceridemia resolution in critically ill adults

Author: Austin Miller

Primary Preceptor: Patrick Costello

Institution: University of Chicago Medicine

Abstract:

1. Purpose

Hypertriglyceridemia is a metabolic complication in critically ill patients. Severe hypertriglyceridemia (≥1000 mg/dL) has risks including the development of cardiovascular disease, acute pancreatitis, pancreatic necrosis, and sepsis. Initial management of hypertriglyceridemia include supportive care with fluid resuscitation and avoidance of contributing medications, such as propofol or clevidipine. There are currently no guidelines to aide clinicians in the management of severe hypertriglyceridemia, but the use of heparin, insulin, and plasmapheresis have been described in the literature. While there is data suggesting the superiority of insulin infusions over plasmapheresis, the optimal insulin infusion dosing strategy remains unknown. Continuous insulin infusions have historically been administered for severe hypertriglyceridemia via various dosing strategies at the University of Chicago Medicine; most notably utilizing a titratable protocol intended for patients with diabetic ketoacidosis. The purpose of this study was to compare the efficacy and safety of continuous insulin dosing strategies for the treatment of severe hypertriglyceridemia.

2. Methods

This was a retrospective single-center cohort study. Adult patients receiving a continuous insulin infusion for severe hypertriglyceridemia admitted to the Medical Intensive Care Unit (ICU) between January 1, 2017 and June 30, 2022 were included. Eligible patients were compared based on the insulin dosing strategy they received; either flat rate insulin infusion or titratable insulin infusion via protocol. Patients initiated on a titratable insulin order and then later switched to flat rate were included in the flat rate insulin group. The primary outcome is the rate of triglyceride level decline on insulin infusion from initiation to hypertriglyceridemia resolution (triglyceride level < 500 mg/dL). Secondary efficacy outcomes include insulin infusion duration, length of hospital stay, length of ICU stay, and receipt of plasmapheresis. Safety outcomes include incidence of hypoglycemic events and incidence of hypokalemic events.

3. Results

Research in Progress

4. Conclusions

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Visualizing Pharmacy Performance

Author: Benjamin Moreno

Primary Preceptor: Erin Shaughnessy

Institution: Rush University Medical Center

Abstract:

Abstract:

1. Purpose

Create an IPP Dashboard to quantify benefits the pharmacy department provides to Rush University Medical Center (RUMC), while identifying areas that can be improved to bolster department performance and overall utility.

2. Methods

This research project focuses on utilizing retrospective review to enhance administrative practices. Within the research, key IPP metrics will be identified and categorized into three domains (staffing, medication utilization, or clinical interventions). These metrics will be recorded over time and displayed in the IPP dashboard to demonstrate the pharmacy department is functioning at max-capacity, utilizing medications appropriately, and that pharmacy staff makes meaningful interventions. These metrics will be analyzed on a monthly basis to help extrapolate significant data that accurately depicts RUMC's IPP utility and support to the health system as a whole.

3. Results

Research in Progress

4. Conclusion

Research in Progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Standardization of Patient Controlled Analgesia within a Multi-Site Health-System

Author: Shannon Mulholland

Primary Preceptor: Jae Shin

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

Patient-controlled analgesia (PCA) is an efficient way to allow a patient to independently administer intravenous pain medication, such as fentanyl, hydromorphone and morphine for pain control. Thousands of patients use PCAs annually for pain related to surgery, cancer, and sickle cell disease. PCAs are effective in managing acute pain with appropriate dosing and safety parameters in place, however it can be dangerous if used inappropriately. According to the Institute for Safe Medication Practices (ISMP), there have been reports of numerous overdoses with patient-controlled analgesia from programming errors. There have also been several common errors identified, such as programming lower than intended concentrations, overriding low concentration soft alerts without investigation, and selecting wrong concentrations. This quality improvement project will review and standardize the PCA concentrations, ordering, and dispensing workflows for a multi-site health-system, based on recommendations from the American Society of Health-System Pharmacists (ASHP) and ISMP.

Methods:

This longitudinal project is exempt from Institutional Review Board approval as it is a quality improvement project. The primary objective is to standardize PCA drug concentrations, ordering and dispensing workflows, by establishing a working group of pharmacists within a multi-site health-system to review the current PCA practices and perform a gap analysis. Once completed, the group will strategize and develop a plan to implement best practices for PCAs within the multi-site health-system. Each member will be responsible for bringing the appropriate recommendations and changes to their respective committees for approval, with the ultimate goal to implement the revised workflow at all sites and provide training to all healthcare employees that will be affected.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Estimated Cost Savings Associated with Implementing an Institutional Policy Defining Appropriate Inpatient Chemotherapy Criteria

Author: Bailey Nagel

Primary Preceptor: Brandon Williams

Institution: Blessing Hospital

Abstract:

Purpose

Chemotherapy is administered in hospitals worldwide for the ease of the patient and provider. The reimbursement of inpatient chemotherapy falls under diagnosis-related codes (DRGs), which in many cases correlate to a lack of reimbursement for high-cost medication therapies. We were interested to identify and create an institutional inpatient chemotherapy policy that defined criteria for appropriate inpatient chemotherapy administration and determine if its implementation would result in institutional cost savings.

Methods

Between 01/01/2022 to 8/15/2022, 27 patients were identified who were admitted and received chemotherapy. Inpatient chemotherapy was determined to be appropriate or inappropriate based on a newly created institutional protocol. The major criteria that will determine appropriate administration include chemotherapy regimen, need for emergent administration, patient risk factors, and monitoring parameters. The primary end point is to evaluate the appropriateness of inpatient chemotherapy. The secondary end point is organizational cost savings. Data will be evaluated utilizing descriptive statistics.

Results

Preliminary results found inpatient chemotherapy has been administered appropriately in 66.6% of patients (18/27). Inappropriate administration resulted in a medication acquisition cost of more than $150,000 to the health system in the eight-month time span.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Oral vs Intravenous Benzodiazepines in Alcohol Withdrawal

Author: Elizabeth Nash

Primary Preceptor: Jared Sheley

Institution: St. Elizabeth's Hospital - Hospital Sisters Health System

Abstract:

Purpose: The purpose of this research is to determine the efficacy and safety of oral vs intravenous benzodiazepines in alcohol withdrawal.

Methods: This research is a retrospective chart review of patients who are treated for alcohol withdrawal with a symptom-triggered order set. The study population will consist of patients receiving treatment for alcohol withdrawal from August 2022 to March 2023. Inclusion criteria is any patient with an order for the hospital CIWA order set. Exclusion criteria are patients with underlying seizure disorders outside of alcohol withdrawal induced seizures and patients with known benzodiazepine use prior to admission. The intervention arm will consist of patients receiving oral benzodiazepines to control symptoms of alcohol withdrawal. The control arm will consist of patients who received at least one dose of intravenous benzodiazepines to control symptoms. The two arms will be compared for safety and efficacy. Efficacy will be determined by examining the acuity of patients receiving oral vs. intravenous benzodiazepines. The primary outcome is occurrence of at least one of the following: progression to severe alcohol withdrawal (CIWA >20), documented seizure, or ICU admission for worsening alcohol withdrawal within the first 5 days of initiation of hospital CIWA order set. Efficacy data will be collected from the EHR including CIWA-Ar scores, occurrence of seizures, use of confounding treatments (including phenobarbital, anti-seizure medications, antipsychotics, and opioids), patient location in the hospital at time of order initiation, benzodiazepines administered, and doses of benzodiazepine administered. Safety data collected will include documented use of flumazenil, respiratory rates <10 rpm, occurrence of intubation, and death.

Results: The results and conclusions are pending at the time of abstract submission.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of Two Venetoclax Dosing Strategies with Strong CYP3A4 Inhibitors in Acute Myeloid Leukemia and Myelodysplastic Syndrome

Author: Umida Nasritdinova

Primary Preceptor: Talha Khan

Institution: Northwestern Memorial Hospital

Abstract:

Acute myeloid leukemia (AML) is the most common subtype of leukemia encountered in adult patients, comprising over 80 percent of all new diagnoses. Despite the advancement in treatments, five-year overall survival across all age groups remains low at 28 percent. Older patients have worse outcomes due to extensive comorbidities or poor baseline performance status, which severely limits chemotherapy options. Recently, DiNardo, et al. found significant benefit in overall survival and complete remission when venetoclax is given in combination with azacitidine versus azacitidine alone in patients who are ineligible for standard chemotherapy. Venetoclax is a novel B-cell lymphoma 2 (BCL2) inhibitor, which exerts its anti-leukemia effect by displacing the anti-apoptotic process which is central to AML's pathology. However, venetoclax is extensively hepatically metabolized by CYP3A4 enzymes, predisposing it to various drug interactions that result in either excessive toxicity or potential inefficacy. In order to avoid serious adverse events, pharmacokinetic studies have established the utilization of lower strengths (50 milligrams and 100 milligrams) in the setting of strong enzyme inhibitors, such as azole antifungal medications. However, as there is paucity in real-world data evaluating the safety and efficacy of these two dosing strategies with concomitant strong CYP3A4 inhibitors, the optimal dose of venetoclax remains unclear.

The present study was a single center, retrospective chart review evaluating the use of two venetoclax dosing strategies spanning January 1, 2016 through August 31, 2022. Inclusion criteria involved patients ≥18 years, new or existing diagnoses of AML or myelodysplastic syndrome (MDS), receipt of a hypomethylating agent (azacitidine or decitabine) in combination with venetoclax 50 mg or 100 mg, and receipt of posaconazole or voriconazole at the time of combined therapy. A total of 288 patients underwent screening and 103 patients were eligible for evaluation. Further results are pending analysis and statistical review.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Impact of Specialty Pharmacy Services on Oral VEGF-TKI Dose Reductions and Discontinuation Rates at an Internal Health-System Specialty Pharmacy

Author: Caleb Navarro

Primary Preceptor: Arathi Reddy

Institution: University of Chicago Medicine

Abstract:

Abstract

For the treatment of cancer, oral targeted therapies have proven to be an essential tool for combating disease in the outpatient setting. Of these targeted therapies, oral vascular endothelial growth factor (VEGF) tyrosine kinase inhibitors (TKIs) have been instrumental for the treatment of a wide variety of malignancies, including but not limited to, colorectal cancer, advanced renal cell carcinoma, thyroid tumors, and hepatocellular carcinoma. While these agents offer significant benefits , many patients will experience toxicities that may limit their ability to continue on treatment, causing frequent dose modifications and may result in early discontinuation. At the University of Chicago Medicine (UCM), specialty pharmacists are poised in a unique position to offer individualized care through continued follow up on patients who fill oral oncolytics through our integrated health-system specialty pharmacy. The aim of this investigation is to determine the impact of our integrated specialty pharmacy services on minimizing the need for dose reductions or discontinuations of VEGF-TKIs compared to patients whose prescriptions are sent to alternative specialty pharmacies.

Methods

A retrospective chart review was performed including patients 18 years and older who received a specialty oncology referral for oral VEFG-TKIs from January 2021 to December 2021. The primary endpoint is rate of VEGF-TKI dose reduction and discontinuation between patients filling their prescription at UCM specialty pharmacy compared to those triaged out to an alternate specialty pharmacy. The secondary objectives are incidence of dose adjustment for specific toxicities as well as incidence and reason for VEGF-TKI discontinuation.

Results

Research in Progress

Conclusions

Research in Progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Anti-Xa vs. aPTT: Evaluation of Heparin Monitoring Strategies

Author: Sara Neale

Primary Preceptor: Jessica Lorenson

Institution: HSHS St. John's Hospital - Hospital Sisters Health System

Abstract:

Anti-Xa vs. aPTT: Evaluation of Heparin Monitoring Strategies

Purpose

Intravenous (IV) unfractionated heparin (UFH) is a narrow therapeutic index drug that requires frequent monitoring to ensure appropriate dosing. Historically, activated partial thromboplastin time (aPTT) has been the primary monitoring strategy for UFH. However, current data suggests that the anti-Xa assay, a more direct measure of heparin activity, may have additional clinical benefits including decrease in time to therapeutic heparin levels and total number of heparin dose adjustments. The purpose of this study is to compare these two monitoring strategies in patients treated with IV UFH.

Methods

This single center, retrospective, cohort study will include patients at least 18 years of age who are receiving a heparin drip per the study site’s medical management order set. Patients with a history of cirrhosis, heparin-induced thrombocytopenia (HIT), active COVID-19 infection, on extracorporeal membrane oxygenation (ECMO), those on continuous renal replacement therapy (CRRT), currently pregnant, or patients with interruptions in heparin therapy due to procedures are excluded. Cohort 1 utilized an aPTT monitoring strategy for IV UFH while cohort 2 utilized an anti-Xa assay. The primary outcome is time to first therapeutic level. Secondary outcomes include major bleeding events, venous thrombotic events (VTE), average number of tests per 24 hours, and time to therapeutic level in patients receiving therapy with direct oral anticoagulants (DOAC) prior to initiation of the heparin drip.

Preliminary Results

Preliminary data in the aPTT cohort shows a mean therapeutic level of 23.0 hours (SD 14.7) compared to 15.8 hours (SD 13.9) in the anti-Xa group. The aPTT group also had an average of 2.3 tests per 24 hours compared to 2.9 tests in the anti-Xa group. Data collection is currently ongoing.

Conclusion

Pending final results, conclusions will be presented at the 2023 ILPRC.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the Impact of Implementing a Best Practice Alert for Clostridioides difficile Testing

Author: Jason Newton

Primary Preceptor: Erik LaChance

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Purpose:

Clostridioides difficile infection (CDI) is a significant contributor to morbidity and mortality of healthcare associated infections in the United States. The introduction of highly sensitive and low specificity molecular diagnostic tests has led to inaccurate diagnosis and overtreatment. Nationally recognized guidelines recommend treatment of CDI in the presence of polymerase chain reaction (PCR) positive and enzyme immunoassay (EIA) toxin positive results, however discordant results are up for clinical interpretation and often treated. Literature supports emphasizing diagnostic stewardship including the implementation of a best practice alert (BPA) to guide ordering practices. The purpose of this project is to determine if the use of a BPA will reduce the amount of inappropriate CDI tests ordered.

Methods:

This project is a multicenter retrospective observational study. Patients will be evaluated from July 2021 until January 2022 in the pre-BPA arm and from June 2022 until December 2022 in the post-BPA arm. This BPA will be a soft stop for providers displaying alternative causes of diarrhea within 48 hours. This will give the provider the opportunity to either keep or remove the CDI PCR depending on clinical discretion. The primary outcome is follow rate of the BPA and secondary outcome is amount of PCR positive tests.

Results: Pending data collection

Conclusion: Pending data collection

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The State of Amiodarone Toxicity Monitoring at Northwestern Memorial Hospital

Author: Anhmy-Eliane Nguyen

Primary Preceptor: Christopher Leong

Institution: Northwestern Memorial Hospital

Abstract:

Amiodarone poses the risk for major toxicities and adverse effects with long-term use and increasing doses including pulmonary toxicity, QTc prolongation, proarrhythmic effects, bradycardia, thyroid toxicity, and hepatic toxicity.

Pharmacist-led monitoring protocols improve patient adherence to recommended testing, help address adverse events, and increase cost savings. We will conduct a retrospective study on the state of monitoring of amiodarone toxicities at Northwestern Memorial Hospital (NMH) and Bluhm Cardiovascular Institute (BCI). The primary endpoint will be the percentage of patients undergoing monitoring of each parameter at 6, 12, and 24 months. The secondary endpoint will be the incidences of each toxicity in patients adherent to the monitoring protocol compared to that of patients whose monitoring did not align with the protocol. The total percentage of each toxicity identified will also be measured.

Data will be collected from approximately 100 adult patients diagnosed with ventricular tachycardia or atrial fibrillation who are prescribed amiodarone from electrophysiology and cardiology services. A monitoring protocol has been developed to monitor amiodarone-induced toxicities: chest x-rays (CXR), pulmonary function tests (PFTs), and ECG will be evaluated at baseline, 12, and 24 months; liver function tests (LFTs) and thyroid stimulation hormone (TSH) levels will be measured at baseline, 6, 12, and 24 months. The percentage of patients adherent to the monitoring protocol at 6, 12 and 24 months will be calculated. The percentage of patients experiencing each toxicity will be calculated. The incidence of toxicities will be calculated in patients adherent to the protocol and those who were not. The total percentage of each type of toxicity identified will also be calculated. Hepatic toxicity is defined as ALT and AST >3x the upper limit of normal (55 IU/L and 48 IU/L, respectively). Hyperthyroidism is defined as TSH <0.4 uIU/mL, and T4 > 1.5 ng/dL. Hypothyroidism is defined as TSH > 4 uIU/mL, and T4 < 0.7 ng/dL. Pulmonary toxicity is defined as a CXR demonstrating patchy interstitial infiltrates and a 20% decline in diffusing capacity of the lungs for carbon monoxide.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the efficacy of empagliflozin in patients with heart failure with reduced ejection fraction

Author: Caophi Nguyen

Primary Preceptor: Kara Bishop

Institution: Franciscan Health Dyer

Abstract:

Title: Evaluating the efficacy of empagliflozin in patients with heart failure with reduced ejection fraction

Authors: Caophi Nguyen, PharmD; Kara Bishop, PharmD, BCPS; Jessica Smith, PharmD, MBA

Abstract

Purpose: Since the addition of sodium glucose co-transporter 2 inhibitor (SGLT2i) in the new heart failure guidelines, hospitals began to implement them into their formulary and use in heart failure. The objective of this study is to evaluate the effectiveness of empagliflozin in patients of Franciscan Health Dyer/Munster with heart failure with reduced ejection fraction for hospital readmission.

Methods: This study will be a retrospective chart review to assess the efficacy and safety of empagliflozin in patients with heart failure with reduced ejection fraction. Patients included must be admitted to Franciscan Health Dyer or Munster, be at least 18 years of age, diagnosed with heart failure with an ejection fraction of 40% or less, and on appropriate guideline-directed medical therapy (GDMT) for heart failure. Pertinent demographics such as age, race, NYHA functional class, and diagnosis of diabetes will be collected. Patients on GDMT with or without SGLT2i who were hospitalized prior to formulary addition will be compared to patients who were hospitalized after the formulary addition.

Results/Conclusion: Pending data collection and analysis.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementing a Hyperglycemia Management Algorithm at an Ambulatory Oncology Infusion Center

Author: Kevin Nguyen

Primary Preceptor: Wendy Ying Hui

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

Cancer patients with diabetes, who have uncontrolled blood glucose, have demonstrated adverse overall survival and disease free survival when compared to those without diabetes in literature. Previous studies have shown patients with diabetes undergoing chemotherapy will prioritize their cancer treatment over managing their diabetes leading to an increased risk of poor glycemic control. Cancer treatments can also increase the risk of poor glycemic control dependent on the chemotherapy agent as well as use of corticosteroids as part of treatment or anti-emetic regimens. This project assessed the incidence and current management of hyperglycemia in patients with cancer to identify opportunities to improve patient care at three cancer infusion sites within a community hospital system.

Methods:

This is a quality improvement project and was exempt from Institutional Review Board approval. A retrospective chart review of patients with pancreatic cancer treated with an anti-emetic regimen containing dexamethasone between September 1, 2019 and August 31, 2022 was evaluated for incidence of hyperglycemia. Data including blood glucose, hemoglobin A1c, diagnosis of diabetes, diagnosis of cancer, and dates of chemotherapy treatments were collected from an electronic health record and analyzed. Results from the initial review prompted an evaluation of all patients with cancer treatment to ascertain the magnitude of patients affected by hyperglycemia regardless of cancer type. Post-evaluation, a quality improvement committee consisting of medical oncologists, endocrinologists, nurses and pharmacists collaborated to develop and implement a clinical decision making algorithm to manage cancer patients with hyperglycemia.

Summary of Results:

Pending

Conclusion:

Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Remdesivir Therapy in Hospitalized Patients Who are Admitted for Reasons other than COVID-19

Author: Stefanie Nguyen

Primary Preceptor: Robert Pecho

Institution: Northwestern Memorial Hospital

Abstract:

COVID-19, caused by the SARS-CoV-2 virus, is a multisystem condition largely impacting the respiratory system. Remdesivir is an RNA-dependent, RNA polymerase inhibitor found to be effective in reducing time to recovery in patients hospitalized for COVID-19. Since 2020, remdesivir use has expanded to include non-hospitalized adults and children. Randomized, placebo-controlled PINETREE trial (NEJM, 2022) concluded that a 3-day course of remdesivir was safe and efficacious in lowering risk of COVID-19-related hospitalization or death at 28 days in symptomatic, unvaccinated, non-hospitalized individuals 12 years or older with mild-to-moderate disease and at least one risk factor for disease progression. Prescribing practices at Northwestern Memorial Hospital now include 3-day remdesivir therapy in hospitalized patients who were incidentally found to have COVID-19 through routine PCR testing and were at high risk of disease progression. As of August 2022, the NIH recommends similar treatment to non-hospitalized patients in accordance with the PINETREE study. The objective of this study is to evaluate the use of 3-day remdesivir therapy in patients who were found to be incidentally COVID-19 positive on admission with high risk of disease progression.

This retrospective, 3:1 case-control study will explore the benefit of 3-day remdesivir therapy in patients admitted to general medicine or medical observation who were incidentally found to be COVID-19 positive with a high risk of disease progression. The primary outcome of this study will be COVID-19 disease progression, defined as requiring mechanical ventilation, requiring supplemental oxygen, $SpO2 \leq 94\%$ on room air, or tachypnea with $RR \geq 24$ bpm. The time frame will be from February 2022 through October 2022. The exposure explored will be remdesivir administration and length of therapy. Additional data collected will include COVID-19 vaccination status, age, sex, ethnicity, BMI, time of therapy initiation from COVID-positive PCR, time of symptom onset, presence of risk factors as defined through the PINETREE trial, remdesivir-related side effects, reason for hospital admission, and length of hospital stay.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of a serotonin syndrome risk calculator in an electronic health record (EHR) system

Author: Tri Nguyen

Primary Preceptor: Jennifer Szparkowski

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

Serotonin syndrome is a rare condition that is associated with increased serotonergic activity. Most cases are mild and are usually resolved by discontinuing the offending agents. However, it can be a potentially life-threatening condition with the presenting symptoms resembling other severe syndromes including catecholamine overdose and neuroleptic malignant syndrome (NMS). Serotonin toxicity results from adjustments, combinations, or overdose of serotonergic medications. ISMP released a 2017 medication safety alert listing the most commonly suspected serotonergic drugs and the differences in causes and symptoms between NMS and serotonin syndrome. Additionally, there are clinical features that are suggestive of serotonin syndrome – ocular clonus, tremors, muscle clonus, and hyperreflexia. With the lack of a definitive test for serotonin syndrome, our providers may benefit from a risk calculation tool to aid in their differential diagnosis. The purpose of this project is to develop and implement a serotonin syndrome risk calculator within the electronic health record system.

Methods:

A literature review was performed to determine a comprehensive list of medications and clinical features associated with serotonin syndrome. To implement the serotonin syndrome risk calculator, an evaluation of existing documents and flowsheets was performed to see how data could be pulled into the calculator. Subject experts were consulted to determine methods for documentation. To determine that the list of medications and clinical features were valid, a chart review was performed for each encounter with the diagnosis of “serotonin syndrome” from February 2018 – February 2023. With this list validated, points were assigned to each medication or medication class, clinical feature, and certain high-risk combinations of medications and features. These point values were then discussed with our taskforce to develop a proposal for a clinical decision support tool.

Results: In process

Conclusion: In process

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The Impact of Pharmacist-Led Screening on the Initiation of Sacubatril/Valsartan in the Inpatient Setting

Author: Kate Noonan

Primary Preceptor: Shannon McCabe

Institution: Northwestern Memorial Hospital

Abstract:

Optimization of guideline-directed medical therapy (GDMT) in chronic heart failure (CHF) is proven to reduce hospitalizations and mortality. However, GDMT initiation and optimization in the inpatient setting is still trying to overcome clinical inertia. A study conducted by Cao et al, found that pharmacist-led medication optimization increased GDMT in ambulatory patients with CHF. Pharmacist's roles continue to expand on inter-disciplinary teams, allowing for GDMT enhancement. Pharmacists' medication expertise could be a strategy to mitigate underutilization of GDMT for CHF and associated economic burden.

An important component of GDMT for heart failure with reduced ejection fraction (HFrEF) is the use of a renin-angiotensin-aldosterone system inhibitor (RAASi) to regulate the neurohormonal system. The PARADIGM-HF trial found that sacubitril-valsartan was superior to traditional angiotensin-converting enzyme inhibitor (ACE-I) therapy alone in reducing morbidity and mortality. These findings resulted in a class 1a recommendation in the 2022 American Heart Association (AHA) guidelines. Pharmacists at Northwestern Memorial Hospital use a screening process to identify eligible patients for sacubatril-valsartan and recommend initiation. The purpose of this study is to evaluate the impact of physician prescribing practices and GDMT optimization of sacubatril-valsartan based on pharmacist-led screening.

This single-center, retrospective study will assess the impact of the current screening process from May 16th 2022 – January 31st 2023. Patients will be identified based on current screening protocol and pharmacist documentation in the form of a note using a standardized template. The primary outcome will analyze the number of patients prescribed sacubatril-valsartan per number of notes written. In addition, secondary outcomes include: sacubatril-valsartan avoidance secondary to cost, appropriate sacubatril-valsartan dose and frequency, lack of initiation due to acute change in vitals or labs after screening has occurred, and discontinuation due to hyperkalemia, hypotension, decline in renal function or angioedema. Data collected will be protected and stored in a secure file.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: High-risk discharge medication burden for ICU patients with SARS-CoV2 pneumonia

Author: Jennifer Novak

Primary Preceptor: Christopher Leong

Institution: Northwestern Memorial Hospital

Abstract:

Patients admitted to the intensive care unit (ICU) with a primary diagnosis of COVID-19 pneumonia and acute respiratory distress syndrome (ARDS) often require aggressive analgesia and sedation regimens to achieve synchrony with mechanical ventilation during prolonged lengths of stay before conversion to oral regimens to facilitate transitioning from the intensive care unit. This may lead to significant challenges with transitions of care as medication are continued at time of discharge. However, the extent and medication prescribing within this patient population have not been well-studied. We aim to describe our experience with weaning analgosedation prior to discharge to characterize experiences with treatment discontinuation.

This is a retrospective, single-center study investigating high-risk medication burden of sedative, analgesic, anxiolytic, and antipsychotic medications at discharge for patients admitted the ICU at Northwestern Memorial Hospital (NMH). Data reports will be generated via electronic health record (EHR) to include all patients admitted with a primary diagnosis of COVID pneumonia between April 2020 and March 2022. Baseline patient characteristics, including age, gender, chief complaint, primary diagnosis, prior to admission medications, and comorbid conditions, will be collected. Specific focus is placed on prior to admission and discharge medication lists, ICU length of stay, length of mechanical ventilation, length of hospitalization and maximum dose of analgesic and sedative medications.

Primary outcome is the number of patients who were prescribed high-risk medications on discharge. Secondary outcomes include the total number of patients with new high-risk medications on discharge, incidence of both therapeutic class and agent usage, and incidence of adverse events related to prescribing errors.

Study results and conclusions will be used to help assist providers with high-risk medication evaluation at transitions of care, emphasize the importance of diligent medication reconciliation, and highlight the valuable role of a pharmacist within an outpatient clinic setting treating COVID-19 patients after discharge.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Let's take a time-out: Implementing a standardized process to assess the clinical use of vancomycin for pharmacists

Author: Jennifer Oderinde

Primary Preceptor: Anthony Chiang

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose:

Vancomycin is often started empirically for its reliability with gram positive pathogens, particularly MRSA. Consequently, it is often over-prescribed even when not needed. Antimicrobial stewardship programs (ASP) have explored multiple strategies, such as antibiotic time-outs, to ensure therapies are tailored to the patient with proper indication and appropriate coverage. This study aims to evaluate the impact of a standardized vancomycin time-out to optimize vancomycin utilization and safety.

Methods:

This is a pre-/post- implementation study conducted at a community teaching hospital. The study was separated into a pre-implementation phase (July-September 2022), implementation phase (October 2022), and post-implementation phase (November 2022-February 2023). Study subjects included inpatient adults on vancomycin for longer than 48 hours. Patients who are immunocompromised, hospice or expired prior to time-out, or on a vancomycin regimen prior to admission were excluded.

Retrospective data (January-April 2022) were collected during pre-implementation phase to establish baseline information. Following retrospective review, a pharmacy-driven time-out initiative was implemented to recommend de-escalation of vancomycin if not deemed appropriate.

Primary outcomes include (1) percent appropriate vancomycin continued after time-out, (2) percent inappropriate vancomycin discontinued during time-out, and (3) time to de-escalation. Additional outcomes include vancomycin days of therapy per 1000 patient days, hospital length of stay, acute kidney injury (AKI) incidence rate, baseline and AKI SCr, days to AKI onset, concurrent nephrotoxic agents, and vancomycin levels if available.

Results:

A total of 195 patients were included for retrospective data. 56/127 (44.1%) patients with continued vancomycin after time-out were considered appropriate, and 68/139 (48.9%) patients with inappropriate vancomycin were discontinued during time-out. On average, inappropriate regimens continued after time-out took over twice as long to de-escalate.

Post-implementation data will be analyzed and compared to pre-implementation data to assess impact of this initiative. Final results and conclusion will be presented at Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Second Phase Anti-Epileptic Therapies for Status Epilepticus

Author: Mackenzie O'Donohue

Primary Preceptor: Meghan Fischer

Institution: OSF Healthcare Saint Francis Medical Center and OSF Healthcare Children's Hospital of Illinois

Abstract:

Purpose: Status epilepticus (SE) is a medical and neurological emergency that requires prompt treatment. Guidelines recommend an initial treatment phase as one to two doses of a benzodiazepine, given either pre-hospital or in-hospital, followed by an intravenous, non-benzodiazepine anti-seizure medication during the second treatment phase. Issues with continuity of care and administration properties of preferred agents limit clinicians' ability to administer second phase agents in the recommended time of 20-40 minutes after seizure onset. The purpose of this study is to evaluate the average time to administration of second phase agents in status epilepticus patients at OSF Ministry hospitals.

Methods: A multicenter, retrospective chart review was performed to identify patients who presented to an emergency department within OSF HealthCare with a primary diagnosis of status epilepticus from January 1, 2022 to December 1, 2022. Patients were only included in the data review if they were above 18 years of age and received a loading dose of one of the three second line agents used in the treatment of status epilepticus (Levetiracetam, fosphenytoin, or valproate) while still in the emergency department. The primary endpoint of this study will evaluate average time from emergency room arrival to administration of the second line agent. Secondary outcomes will evaluate how frequently benzodiazepines were utilized in the emergency department prior to the administration of the second phase agent, and if the correct weight-based dosing of the second line agents was used.

Results: In process

Conclusions: In process

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Reducing the use of unapproved abbreviations in a community healthcare system

Author: Abimbola Ogedengbe

Primary Preceptor: Victoria Noonkester

Institution: NorthShore University HealthSystem

Abstract:

Purpose: Medication errors are preventable events that result in inappropriate medication use or patient harm. Approximately 5% of medication errors are attributed to unapproved abbreviation use. Reducing the use of unapproved abbreviations is a low-cost approach to prevent medication errors. The national patient safety goal NPSG 02.02.01 created by The Joint Commission (TJC) standards requires organizations to have a list of unapproved abbreviations. Organizations must continuously develop ways to eliminate the use of unapproved abbreviations to maintain the TJC standards, including those in TJC's Do Not Use list. This project aims to audit for the presence of and eliminate unapproved abbreviations from standardized medication build to meet TJC recommendations as well as the institution-specific list of unapproved abbreviations.

Method: This evaluation qualifies as a quality improvement project; therefore, it is exempt from Institutional Review Board approval. This is a retrospective audit of a community health system's medication and order set build for the presence of unapproved abbreviations. First, the institution's list of unapproved abbreviations was updated to include current recommendations of the TJC and ISMP. The institution's health information technology department provided reports of formulary medication build and order set build including naming conventions, administration instructions, dose units, routes, and frequencies. Medication fields containing unapproved abbreviations in the build were identified and modified in the electronic medical record software. The institution's auto-correct dictionary was also modified according to the updated unapproved abbreviations list. The data from this evaluation will be analyzed using descriptive analysis. The primary objective was the percentage of system build with an unapproved abbreviation from the updated institution's list of unapproved abbreviations before the intervention.

Results: In-progress

Conclusion: In-progress

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Pharmacy Residency Preceptor Time Study Standardization

Author: Jimmi Patel

Primary Preceptor: Scott Padjen

Institution: Advocate Good Shepherd Hospital

Abstract:

Purpose:

ASHP-accredited post-graduate year-one pharmacy residency programs may be eligible for direct and indirect program costs to be reimbursed by the Centers for Medicare & Medicaid Services (CMS). The costs are passed through by the site operator and reimbursement occurs based on the percentage of Medicare patients that site serves. A major reimbursement-eligible "pass-through" cost is the residency preceptors' time, captured through time studies conducted by all sites. Currently, there are eleven PGY-1 programs across Advocate Aurora Health System. The objective of this project is to capture preceptor time accurately and comprehensively through standardization of the process across all sites and identifying and addressing opportunities for optimization of the process.

Methods:

Data collection included audits after the implementation of the standardized method to identify trends and opportunities for optimization and hospital site-specific adjustments. Historical data from 2022 audits from available sites was collected for comparison purposes. Data was collected through a shared platform. Audit data was monthly and included time spent precepting residents, separated by preceptors, sites, and preceptor associated cost-centers on a monthly basis.

Results: pending

Conclusion: pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of prescribing trends in geriatric patients in ambulatory setting

Author: Juhi Patel

Primary Preceptor: Amber Meigs

Institution: NorthShore University HealthSystem

Abstract:

Abstract (maximum 300)

Primary Author: Juhi Patel, PharmD

Secondary Author: Amber Meigs, PharmD, BCPS

Title: Evaluation of prescribing trends in geriatric patients in ambulatory setting

Purpose: The American Geriatrics Society developed Beers Criteria® to help identify potentially inappropriate medication use in elderly patients. Certain medications that fall under the Beers Criteria® are associated with an increased risk of adverse events leading to hospitalizations or other health complications in elderly patients, and are strongly advised to avoid. This community health system is considering the implementation of Clinical Decision Support (CDS) to alert providers of prescriptions written in patients sixty-five years and older for medications that meet the Beers Criteria®. Additionally, this health system uses an integrated drug-drug interaction alert database using vendor-assigned properties such as severity level, documentation, and monitoring parameters. This project aims to analyze current prescribing practices in the ambulatory setting for medications that meet the Beers Criteria® in elderly patients. Understanding the current state of prescribing practices will help the system identify compliance gaps and determine whether to implement this CDS alert for providers to help them select appropriate agents in the ambulatory setting.

Methods: This evaluation is considered quality assurance and is exempt from Institutional Review Board approval. A review of prescriptions for medications that meet the Beers Criteria® written between July 1, 2022 and December 31, 2022 will be performed. The following information will be reviewed: medications prescribed, ordering provider specialty, patient's age, and the date of the written prescription. The primary objective is to describe the current prescribing practice of medications that conflict with Beers Criteria® recommendations to see if there is a need to implement a CDS alert for providers in an ambulatory setting.

Results: The data contains approximately 24,000 prescription medications that fall under the Beers Criteria®. A total of 4,644 prescriptions written are strongly recommended to avoid in patients sixty-five years and older. Prescriptions will also be reviewed for use in targeted disease states and indications. Evaluation and conclusions will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Ketorolac Use for Pain Management in Trauma Patients with Orthopedic Fractures

Author: Hanna Persha

Primary Preceptor: Lina Piech

Institution: Advocate Christ Medical Center and Advocate Children's Hospital

Abstract:

Ketorolac is an appealing medication for the treatment of pain in patients with traumatic injuries, as it can be administered parenterally and may decrease opioid use as part of a multi-modal pain regimen. However, it is commonly avoided in trauma patients due to potential adverse effects, including bleeding and acute kidney injury. There is limited data on the incidence of these adverse effects in trauma patients. This study reviews the incidence of bleeding and acute kidney injury in patients with traumatic orthopedic injuries who received ketorolac for the treatment of pain.

This single-center, retrospective review evaluates trauma patients with orthopedic fractures who were admitted to Advocate Christ Medical Center from October 2020 to March 2021. Patients are identified for eligibility through the electronic medical record based on the following fractures: rib, humerus, femur, pelvic, femoral neck, tibia, radius, fibula, acetabulum, mandible, sternal, and spinal fractures. Patients with the following criteria are excluded: pregnancy, death within 24 hours of admission, chronic kidney disease stage 3 or greater, or therapeutic anticoagulation pre-injury. Patients with traumatic orthopedic injuries who received ketorolac are compared to those who did not receive ketorolac. The primary outcome is the development of acute kidney injury or a bleeding event post-injury. Secondary outcomes include pain scores and total daily dose of opioids in morphine milligram equivalents. The following data points are collected: age, gender, weight, height, comorbidities, pre-injury non-steroidal anti-inflammatory drugs, mean admission systolic blood pressure, length of stay, injury type, injury by region, type of surgery, use of intravenous radiocontrast, use of anticoagulants, use of nephrotoxic antibiotics, concurrent proton pump inhibitor use, blood transfusions, active bleeding problems, operative interventions to control bleeding, serum creatinine, mortality, morphine milligram equivalents per day, and ketorolac dose and number of doses. This study is Institutional Review Board approved and results are pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparison of midazolam versus dexmedetomidine as second-line sedation in very low birth weight neonates

Author: Elisha Powell

Primary Preceptor: Pooja Shah

Institution: University of Chicago Medicine

Abstract:

Purpose:

Inadequate pain and stress management in neonates is associated with increased morbidity. Due to the side effect profile of benzodiazepines, including a risk of neurological impairment, alternative agents may be warranted. Dexmedetomidine (DEX), an alpha-2 adrenergic receptor antagonist, is an alternative sedative agent with potential neuroprotective effects.

Methods:

This retrospective, single-center study aimed to evaluate the efficacy and safety of DEX compared with midazolam in very low birth weight (VLBW) neonates as second-line sedative agents.

Results:

A total of 28 VLBW neonates were included in the study with 21 subjects in the midazolam group and 7 subjects in the DEX group. Baseline characteristics were very similar in both groups, with the exception of the 5-minute Apgar score being higher in the midazolam group compared to DEX at 6 versus 3 ($p = 0.06$). The DEX group was comparable to the midazolam group for the number of times the NPASS pain/agitation score was ≥ 3 ($p = 0.451$), highest NPASS pain/agitation score ($p = 0.2757$), and the average number of rescue boluses at 9 versus 11 ($p = 0.1512$). The DEX group showed a statistically significant difference when compared to the midazolam group with the change in systolic blood pressure at mean -12.14 versus -24.76 ($p = 0.03$), and the change in diastolic blood pressure at mean -6.86 versus -19.71 ($p = 0.0019$). There was no difference in need for mechanical ventilation, time to full feeds, length of stay, or mortality.

Conclusions:

The use of DEX as a second-line sedation agent appears to be comparable in efficacy to midazolam and may have a favorable adverse effect profile in relation to blood pressure. Future studies assessing adverse effects and neurologic outcomes are warranted.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the Impact of Pharmacist-Led Drug Regimen Reviews in Long Term Care (LTC) Veterans

Author: Ana Pranjic

Primary Preceptor: Annette Kossifologos

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Evaluating the Impact of Pharmacist-Led Drug Regimen Reviews in Long Term Care (LTC) Veterans

Background

Potential and actual medication errors and adverse events often occur during transitions of care. Medication errors can lead to hospitalizations, the need for additional medication therapy, and death. Geriatric patients are particularly vulnerable to medication errors due to multiple comorbidities, frailty, and polypharmacy. In an effort to improve patient outcomes in long-term care (LTC) facilities, the Centers for Medicare and Medicaid Services (CMS) implemented a Drug Regimen Review (DRR) requirement in 2014. This metric requires a clinician to perform a concise medication review for patients within 5 days of admission in order to more quickly identify and prevent significant medication issues. Previously, patients were only required to have a Comprehensive Medication Management (CMM) note completed within 21 days of admission to the facility. The purpose of this study was to describe the impact of pharmacist recommendations within the DRR in a LTC facility.

Methods

This is a single center, quality assurance, retrospective chart review study at Edward Hines, Jr. VA Hospital. Eligible patients were admitted from an acute care setting to a LTC unit from January 2021 through June 2021, and had a DRR note written by a pharmacist within 5 days of admission. Demographic information for each patient was collected. Medication recommendations in the DRR were collected and classified by category (for example: dose titration or taper, medication discontinuation, renal or hepatic dose adjustment, drug-drug interactions, new medication initiation) along with the class of medication that the recommendation pertained to. The primary endpoint of this study was to determine the ratio of pharmacist recommendations accepted and implemented by the LTC team.

Findings

Findings are currently pending completion of chart reviews.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Heparin vs. enoxaparin and incidence of invasive interventions in patients with pulmonary embolism

Author: Alyse Rehberger

Primary Preceptor: Kelsea Caruso

Institution: Northwestern Memorial Hospital

Abstract:

Anticoagulation has been the backbone of pulmonary embolism (PE) treatment for decades, however, the choice of anticoagulation agent depends on PE severity and candidacy for advanced therapies. Currently, Northwestern Memorial Hospital's pulmonary embolism response team (PERT) algorithm does not provide specific recommendations for anticoagulation therapy based on PE severity. In anticipation for possible thrombectomy, providers in the emergency department often initiate anticoagulation therapy using intravenous heparin instead of enoxaparin given the decreased time necessary to hold treatment if invasive procedure is necessary. The disadvantages associated with utilizing intravenous heparin is delayed time to therapeutic anticoagulation, frequent and costly anti-Xa monitoring, and nursing team time consumption and attention. For these reasons, enoxaparin is more advantageous option. The objective of this study is to determine the incidence of invasive procedures following pulmonary embolism diagnosis to better guide anticoagulation agent selection.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the de-escalation from intravenous antibiotics to either oral cephalosporins, oral sulfamethoxazole/trimethoprim, or oral fluoroquinolones for treatment of gram-negative urinary tract infections complicated by bacteremia

Author: Craig Ripski

Primary Preceptor: Lisa Young

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Purpose: Urosepsis is defined as sepsis inflicted by a severe infection of the urogenital system, most commonly caused by gram-negative bacilli, that can lead to bacteremia. The most common origin of urosepsis is a complicated urinary tract infection, resulting from structural or functional abnormalities of the urinary tract, blocking urine flow. National guidelines do not currently offer guidance on oral antibiotic use in urosepsis treatment and studies that exist are small in nature focusing on women, which is not the primary population at Jesse Brown Veterans Affairs Medical Center (JBVAMC). The purpose of this study is to compare treatment outcomes between oral fluoroquinolones, sulfamethoxazole/trimethoprim, and second or third generation cephalosporins for urosepsis complicated by gram-negative bacteremia after an initial course of intravenous (IV) beta-lactam. The primary objective is treatment failure, defined as positive repeat blood or urine culture along with symptoms consistent with infection within 30 days of antibiotic completion.

Methods: This single-center, retrospective chart review includes adult patients admitted to JBVAMC with gram-negative bacteremia of urinary source with Klebsiella spp. or Escherichia coli who received an oral second or third generation cephalosporin, sulfamethoxazole/trimethoprim, or fluoroquinolone with urinary penetration after 120 hours or less of IV beta-lactam therapy from July 1, 2011, through October 1, 2022. Patients will be placed into three comparator groups based on oral antimicrobial therapy used: cephalosporin, fluoroquinolone, or sulfamethoxazole/trimethoprim. Patients are excluded with functional or structural irregularities present within the urinary tract, including nephrolithiasis, neurogenic bladder, end-stage renal disease with or without need for dialysis, or an external device in place, organisms other than Klebsiella spp. or E. coli present in urine or blood cultures, and previous antibiotic therapy within 14 days of admission.

Results: The results of this study will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Comparing First Line Immunotherapy Regimens for Non-Small Cell Lung Cancer: Ipilimumab/Nivolumab versus Pembrolizumab for Stage IV Disease

Author: Meghan Ritchey

Primary Preceptor: Cara Chang

Institution: Northwestern Memorial Hospital

Abstract:

Background/Rationale:

Immuno-oncology (IO) therapies with pembrolizumab and nivolumab/ipilimumab have become a mainstay of treatment for stage IV non-small cell lung cancer (NSCLC). Landmark phase III trials such as CheckMate 227, KEYNOTE-042, and KEYNOTE-024 have compared the safety and efficacy IO-only regimens to platinum-based chemotherapy regimens in the first-line setting in this patient population. These new treatments demonstrated durable antitumor responses and immune-related adverse events, especially with the combination of nivolumab and ipilimumab. To date, the data that compare the efficacy and safety of pembrolizumab to nivolumab/ipilimumab for the first-line treatment of stage IV NSCLC are limited.

Objective(s):

This study will compare the efficacy of pembrolizumab to nivolumab/ipilimumab through the primary endpoint of 2-year progression-free survival and the secondary endpoint of 2-year overall survival. Safety endpoints will include the incidence of immune-related adverse events and reasons for IO discontinuation.

Methods:

Data will be collected via electronic data warehouse and chart review in this single-center, retrospective, observational cohort study at Northwestern Memorial Hospital. Eligible patients are those aged 18 years or older with a diagnosis of stage IV NSCLC who received pembrolizumab or nivolumab/ipilimumab as first-line treatment for advanced disease from 10/01/2015 to 11/30/2022. Exclusion criteria include the presence of a targetable genetic mutation (e.g. EGFR, ALK translocation, etc), comorbid autoimmune disease, prior receipt of a transplant (solid organ or stem cell), and concurrent therapy with immunosuppressive medications. The IBM SPSS software will be used to analyze data using the appropriate statistical tests. Nominal data will be analyzed with chi-square or Fisher's exact test, as appropriate. Continuous data will be analyzed via Student's T-test or Mann-Whitney U, depending on if the data is parametric or non-parametric.

Results/conclusions:

Results and conclusions are currently pending. The expected number of included patients is 150 people.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Management Trends of Euglycemic Diabetic Ketoacidosis in the Intensive Care Unit

Author: Kyle Ritter

Primary Preceptor: Sophia Brown

Institution: Northwestern Memorial Hospital

Abstract:

Purpose: Euglycemic diabetic ketoacidosis (eDKA) is a syndrome characterized by anion gap metabolic acidosis, ketosis, and normoglycemia (blood glucose less than 250 mg/mL). eDKA is driven by a lack of carbohydrate stores rather than a deficiency of insulin as seen in traditional DKA. Sodium-glucose cotransporter-2 (SGLT-2) inhibitors can induce eDKA by increasing both urinary excretion of glucose and the ratio of glucagon to insulin secretion. Unlike traditional DKA, limited guidance exists regarding appropriate treatment strategies for eDKA. Traditional DKA management includes continuous infusion insulin titrated based on blood glucose paired with maintenance IV fluids to reverse ketogenesis and acidosis. Conversely, due to its pathophysiology, eDKA treatment involves utilizing a fixed rate insulin infusion with concomitant dextrose-containing fluid infusion titrated to normoglycemia. Current practice at our institution is a fixed insulin infusion rate of 0.1 units/kilogram/hour. The aim of this study is to describe eDKA treatment strategies and assess adherence to a fixed insulin infusion rate on the resolution of this disease state.

Methods: This is a retrospective, descriptive study conducted at Northwestern Memorial Hospital. The study population will include patients admitted to any intensive care unit (ICU) with a diagnosis of eDKA from October 2020 - October 2022. Study endpoints will include adherence to a fixed dose insulin infusion, defined as a fixed rate of 0.1 units/kilogram/hour for greater than 80% of time on insulin infusion, ICU length of stay, time to anion gap closure, recurrence of euglycemic DKA during admission, and time to appropriate transition off insulin infusion. Safety endpoints will include hypoglycemic and hypokalemic events.

Results/Conclusion: Pending data collection.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the conversion of budesonide/formoterol inhalation aerosol to fluticasone/salmeterol inhalation powder in patients with chronic respiratory conditions

Author: Ralf Romero

Primary Preceptor: Alexandra Riskus

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Asthma and chronic obstructive pulmonary disease (COPD) are respiratory diseases prevalent among the Veteran population. The management of asthma often includes inhaled corticosteroid (ICS) with or without a long-acting bronchodilator (LABA). Single maintenance and reliever therapy (SMART) with ICS and inhaled long-acting beta agonist (LABA) is now a guideline-recommended approach to asthma treatment. For the management of COPD, the first-line treatments are long-acting bronchodilators including long-acting muscarinic antagonists (LAMA) and LABAs. The routine use of ICS is not encouraged by current guidelines and if utilized, should be combined with LABA/LAMA and reserved for patients with concurrent asthma, history of more frequent exacerbations, and eosinophilia. As of August 1st, 2021, the national Veterans Affairs (VA) formulary ICS/LABA changed from budesonide/formoterol to fluticasone/salmeterol. The purpose of this study is to determine if there is a difference in respiratory control of patients that were transitioned to fluticasone/salmeterol from budesonide/formoterol as a result of a VA-wide conversion to the preferred ICS/LABA product.

This study is a retrospective electronic chart review of patients at Jesse Brown VA Medical Center who were prescribed budesonide/formoterol, and then converted to fluticasone/salmeterol in response to the VA-nationwide conversion. Patients were identified by obtaining a list of all patients with a prescription for fluticasone/salmeterol after August 1st, 2021 through September 30th, 2022. Patient charts will be reviewed for a previous prescription of budesonide/formoterol for at least 6 months prior to the new fluticasone/salmeterol prescription. The primary endpoint is the difference in respiratory control before and after the conversion. This is defined as changes in healthcare utilization including unscheduled clinic/emergency department/urgent care visits, hospital admissions, and changes in respiratory treatment regimen.

Results will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Complications of Anticoagulation in Lung Transplant Recipients on Concurrent Azole Antifungal Therapy

Author: Anna Rubino

Primary Preceptor: Clare Kane

Institution: Northwestern Memorial Hospital

Abstract:

Purpose: Lung transplant recipients are at an increased risk of venous thromboembolism (VTE) and many require anticoagulation post-transplant. While the evidence for direct oral anticoagulant (DOAC) use in transplant recipients is growing, limited data exists regarding the concurrent use of DOACs and interacting medications such as azole antifungals. The purpose of this study was to investigate the safety and efficacy of apixaban compared to alternative anticoagulants in lung transplant recipients receiving posaconazole.

Methods: This was a retrospective, single-center, comparative study of adult lung transplant recipients between 2016 and 2022. Patients were included if they were initiated on apixaban, warfarin, or enoxaparin for treatment of VTE while receiving posaconazole therapy. The primary endpoint was a composite of thrombotic or bleeding events.

Results: A total of 63 patients were included, with 26 patients receiving apixaban and 37 patients receiving non-DOAC anticoagulation. All patients in the apixaban group received reduced dose apixaban 2.5 mg twice daily. The non-DOAC group consisted of enoxaparin (n=27) and warfarin (n=10). The primary endpoint occurred in 26.9% of patients in the apixaban group compared to 40.5% of patients in the non-DOAC group. Thrombotic events occurred in 2 patients in the apixaban group and 3 patients in the non-DOAC group. In the apixaban group, there were no episodes of major bleeding, compared to 8 cases in the non-DOAC group.

Conclusions: There was no significant difference in the overall incidence of thrombotic or bleeding events in lung transplant patients receiving apixaban compared to non-DOAC anticoagulation for treatment of VTE. Notably, there was an increased bleed risk in the non-DOAC group, with a significantly higher incidence of major bleeding events. In lung transplant recipients receiving posaconazole therapy, dose-adjusted apixaban may be a safe and effective treatment for VTE compared to warfarin or enoxaparin.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the Safety of a Beta-Lactam Allergy Protocol

Author: Alexandra Sakowski

Primary Preceptor: Jaime Borkowski

Institution: Northwestern Medicine Delnor Hospital

Abstract:

Beta-lactam allergies pose a challenge to the optimization of antibiotic therapy. Some of these allergies are not true allergies, and instead may be adverse effects of the drug or even reported anecdotally from a family member. This issue is further complicated by the fact that traditional methods of challenging allergies can be costly or time-consuming. The purpose of this retrospective, observational, case-control study is to assess the safety of a beta-lactam allergy protocol by comparing the incidence of hypersensitivity reactions following the administration of a beta-lactam antibiotic in patients with a reported beta-lactam allergy to that in patients without a reported beta-lactam allergy. This study includes adults in the community hospital setting who received a beta-lactam antibiotic for any indication during an inpatient admission. Patients with a history of a beta-lactam allergy that were challenged with a beta-lactam outside of the protocol recommendations have been excluded. The treatment groups are separated by the presence or absence of a documented beta-lactam allergy, and patients have been matched by characteristics such as the number of reported allergies, comorbidities, and other treatment-related factors. The primary outcome is the occurrence of a hypersensitivity reaction following the administration of a beta-lactam antibiotic as determined by predefined criteria and chart review. The secondary outcome is incidence of all adverse events and includes the type of reaction. The association between the primary outcome and the presence of a beta-lactam antibiotic allergy will be evaluated using an odds ratio. Descriptive statistics will be utilized to report patient characteristics, demographics, and adverse events as part of the secondary outcome. Results and conclusions are pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Assessing the Impact of Clinical Pharmacist Interventions with Provider Compliance on Osteoporosis Screening and Treatment in Veterans on Chronic Glucocorticoid Therapy

Author: Sara Salama

Primary Preceptor: Kavita Palla

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Background:

Osteoporosis is a disease that is characterized by low bone mass, deterioration of bone tissue and compromised bone health that may result in debilitating fractures. Risk factors for developing osteoporosis include advanced age, fracture history, comorbid conditions, as well as chronic medication use such as chronic glucocorticoids among others. Chronic glucocorticoid therapy is defined as the use of prednisone 5mg/day or the equivalent steroid dose for greater than 90 days. Osteoporosis related fractures may occur in 30-50% of patients on chronic glucocorticoid therapy. Chronic steroid use increases the risk of developing a fracture if patients are not screened and treated appropriately. Previous studies have demonstrated the positive impact of pharmacist-provider collaboration in managing osteoporosis, including appropriate screening, treatment, and follow-up.

Purpose:

The purpose of this study is to assess the impact of clinical pharmacist interventions with provider compliance on osteoporosis screening and treatment initiation in veterans at high risk of developing osteoporosis related fractures due to chronic glucocorticoid use.

Methods:

A list of subjects on at least prednisone 5 mg/day or the equivalent, for a duration of 90 days were included in the study. In phase 1 of the study, a clinical pharmacist (CP) completed a comprehensive chart review to determine if an intervention was necessary to improve osteoporosis related outcomes. A CP placed a guideline directed clinical reminder note in the electronic medical record for eligible patients to complete DEXA screening, obtain labs, or

initiate pharmacological therapy. In phase 2 of the study, the rate of provider compliance with CP interventions will be assessed at baseline and 180 days following placement of the CP note in 60 subjects. Data will be analyzed using the chi-square method and descriptive statistics.

Results/Conclusion:

Pending study completion.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Accuracy of methicillin-resistant Staphylococcus aureus colonization detection methods to predict MRSA skin and soft tissue infections

Author: Danielle Sanchez

Primary Preceptor: Joseph Levato

Institution: Advocate Christ Medical Center and Advocate Children's Hospital

Abstract:

Methicillin-resistant Staphylococcus aureus (MRSA) is a cause of widely-encountered infections, with vancomycin being the most frequently prescribed inpatient antibiotic. MRSA PCR nares swab is a common method for determining colonization status. Studies of patients with pneumonia have revealed high negative predictive values (NPV) of nasal PCRs to rule out MRSA infection, but data supporting its use for prediction of other MRSA infections remain less robust. The goal of this study is to evaluate predictive values for MRSA colonization to determine the presence of MRSA skin and soft tissue infections (SSTIs).

A medical chart review will evaluate patients who have established inpatient or emergency encounters within Christ Medical Center. Patients included are adults greater than or equal to 18 years of age who have had a MRSA nares PCR as well as SSTI culture collected during time of encounter with available results. Exclusion criteria in this population are cases with unfinalized speciation of SSTI culture result, patients whose MRSA nares PCR and SSTI culture were collected during different encounters, or collected at a site outside of Christ Medical Center. Data to be collected will include age, race, gender, past medical history, residence, initial date of encounter, date and results of both MRSA nares and SSTI culture, type and anatomical location of SSTI, antibiotic exposure in the twelve months prior to and during study admission, and any behavioral or clinical risk factors that may be associated with MRSA colonization or infection. The primary outcome will assess NPV, positive predictive value (PPV), sensitivity and specificity of MRSA colonization to determine presence of MRSA positive infection. The secondary outcome is to identify other predictors of MRSA SSTI. Statistical analysis will include descriptive statistics, standard measures of classification accuracy, including calculation of PPV, NPV, sensitivity and specificity, and Chi Square test for categorical data.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Pre-Exposure Prophylaxis in Women at High-Risk for HIV: Prescribing Practices at a Teaching Hospital Outpatient Setting

Author: Leydi Sanchez

Primary Preceptor: Ryan Kates

Institution: Northwestern Memorial Hospital

Abstract:

Background: Pre-exposure prophylaxis (PrEP) coverage is one of the prevention strategies by the Centers for Disease Control and Prevention (CDC) to end the Human immunodeficiency virus (HIV) epidemic in the United States. There are currently two therapies currently approved for PrEP in women, which include once-daily oral emtricitabine/tenofovir disoproxil fumarate (Truvada) and bimonthly injectable cabotegravir (Apretude), both options shown to be greatly effective at preventing HIV acquisition. Despite the availability of safe and effective PrEP therapies, only 10% of women who could benefit from PrEP are prescribed PrEP in the US, even though women represent one-quarter of people living with HIV in our country. Optimizing PrEP implementation in the Primary Care and Obstetrics/Gynecology (OB/GYN) settings is paramount to reduce the heterosexual transmission of HIV among women.

Purpose: To identify prescribing practices in PrEP for women at high-risk of contracting HIV in the Primary Care and OB/GYN clinics at Northwestern Memorial Hospital (NMH).

Methods: A retrospective chart review will be conducted for patients seen at NMH Primary Care and OB/GYN offices during September 1st, 2021 until September 30th, 2022. Included patients are 18-40 years of age, sexually active with one or more partner in the past 6 months, history of sexually transmitted disease in the past 6 months, and intravenous drug use. Patients are excluded if they are pregnant, have a creatinine clearance less than 60 mL/min, or have a documented allergy to any of the PrEP components. The primary endpoint is the number of women at high-risk of contracting HIV who were prescribed PrEP. Secondary endpoints include women at high-risk of contracting HIV with whom their doctors discussed PrEP, and if PrEP was prescribed, appropriateness of refills, and monitoring. Lastly, safety endpoints include reported side effects of PrEP and reasons for discontinuation.

Results: Results to be presented at ILRPC Conference

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Development and Implementation of a New Clinic Referral Form at a Pharmacist-Managed Anticoagulation Clinic

Author: Brenly Sanchez Cintron

Primary Preceptor: Lyly Tran

Institution: NorthShore University HealthSystem

Abstract:

Purpose: The pharmacist-managed anticoagulation clinic has separate referral forms in use for the management of warfarin and direct oral anticoagulants (DOACs). The current referral forms require minimal information from the referring provider necessitating pharmacists to search through a patients' electronic health record or communicate multiple times with the referring provider for missing information. The current warfarin and DOAC referral forms require providers to include the following information: referring hospital system name, anticoagulation clinic location, international normalized ratio (INR) goal if applicable, and expected duration of therapy. This creates a gap in the pharmacists' understanding of the patients' medical status such as the potential need for anticoagulation bridging based on their INR level or upcoming invasive procedures. The primary objective of this project is to develop an improved referral form for a pharmacist-managed anticoagulation clinic to enhance the efficiency of patient care. The secondary objective of this project is to create a consolidated referral form for warfarin and DOAC management, with the addition of periprocedural anticoagulation management.

Methods: Pharmacists in the anticoagulation clinic were surveyed to determine what improvements should be made to the current warfarin and DOAC referral forms. A literature review was conducted to identify features that should be included in the new referral form for periprocedural anticoagulation management. Working with the health system's information technology team, a new clinic referral form will be designed to include management of warfarin, DOACs, and periprocedural anticoagulation. This will include the incorporation of drop down menus, more required informational fields, and the elimination of unnecessary fields currently included. The new referral form will be implemented and assessed for further improvements and pharmacist/provider satisfaction.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Factors associated with postoperative pulmonary complications

Author: Catherine Sanden

Primary Preceptor: Hina Patel

Institution: NorthShore University HealthSystem

Abstract:

Purpose: Postoperative pulmonary complications (PPC) are among the most common adverse events experienced following surgery with an estimated incidence of 3.58 per 1000 discharges. These include respiratory infection, bronchospasm, pleural effusion, pneumothorax, and postoperative respiratory failure (PRF). The Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicator 11 (PSI 11) defines PRF as failure to wean from mechanical ventilation within 48 hours of surgery or unplanned intubation postoperatively. In 2000, the AHRQ estimated PRF, the most significant PPC, cost approximately $53,000 per case. With rising numbers of surgical procedures, risk mitigation methods for PRF are increasingly important to identify and initiate earlier interventions. Prior research suggests factors, such as age, sex, weight, renal function, nutritional status, and medication utilization, may affect a patient's risk of developing PPC. This project's purpose is to identify commonalities amongst patients who developed PPC in relation to medications, weight, renal function, and nutritional status to create tools to mitigate future PPC.

Methods: This project is a quality improvement initiative exempt from Institutional Review Board approval. A retrospective electronic health record review was performed for adult patients within four hospitals in a community health system who developed a respiratory-related rapid response event (RRRE) or triggered PSI 11 within a twelve-month period. Patients were included if they underwent a surgical procedure during the admission prior to the RRRE or PRF. Hospital encounter records were reviewed for age, sex, height, weight, calculated body mass index (BMI), serum creatinine, albumin, history of pulmonary disorders, and total length of stay. Use of opioids, sedating agents, and neuromuscular blocking agents perioperatively, defined as 4 hours prior to procedure start time through the following 48 hours, were evaluated individually and as associated with BMI and albumin. Data was de-identified and password-protected. Descriptive statistics will be used to evaluate the data.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the safety and efficacy of low dose tolvaptan for the initial treatment of SIADH

Author: Maggie Schieber

Primary Preceptor: Joshua DeMott

Institution: Rush University Medical Center

Abstract:

Hyponatremia is an electrolyte disorder in hospitalized patients commonly caused by syndrome of inappropriate antidiuretic hormone (SIADH). Acute, severe hyponatremia can cause significant morbidity and mortality, but rapid sodium overcorrection can lead to severe neurological deficits, osmotic demyelination, and death.

Tolvaptan promotes free water excretion without serum electrolyte loss, increasing urine output, and restoring normal sodium levels. Original studies approving tolvaptan utilize 15mg as initial dosing. However, later studies found that the use of 15mg tolvaptan corresponds to a higher chance of sodium overcorrection. The aim of this study is to assess the safety and efficacy of low versus high dose tolvaptan for the treatment of SIADH and hypothesize that a 7.5mg initial dose will result in less sodium over correction compared to 15mg initial doses.

This is a retrospective, single-center, observational cohort study including adults with a diagnosis of SIADH who presented to Rush from 1/1/2012 to 9/1/2022 with a sodium of < 135 upon admission, a documented administration of 7.5mg or 15mg tolvaptan, and a creatinine clearance > 10 mL/min. Patients were excluded if baseline serum sodium was > 140, creatinine clearance < 10 mL/min or anuria, or any current hepatic disease or impairment.

The primary outcome is the proportion of patients with sodium overcorrection within 24 hours following tolvaptan administration (> 6 mEq/L/24 hours). Secondary outcomes include sodium levels prior to tolvaptan administration and at pre-defined intervals post-tolvaptan administration; proportion of patients within appropriate, rapid, or severe sodium correction rates (≤ 6 mEq/L/24 hours, >6 mEq/L/24 hours and > 12 mEq/L/24 hours, respectively); prevalence of patients using rescue agents or concomitant SIADH treatments. Safety outcomes include incidence of osmotic demyelination or death within the first 24 hours after tolvaptan for patients with rapid or severe sodium overcorrection. Statistics will be completed via SPSS.

Results pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of a Meds to Beds Program in Pediatric Patients

Author: Cady Schleeper

Primary Preceptor: Anna Stewart

Institution: HSHS St. John's Hospital - Hospital Sisters Health System

Abstract:

The Center for Medicare and Medicaid Services (CMS) determines hospital reimbursement using performance-based outcomes, including 30-day readmission and length of stay. In order to improve performance on CMS outcomes, many hospitals have adopted medication bedside delivery programs, also known as meds to beds (M2B). Current literature evaluates M2B programs' impact on 30-day readmission rates and shows variable evidence supporting reduction in readmission. HSHS St. John's Hospital adopted a M2B service, provided by HSHS St. John's Community Pharmacy, in October 2019 and the impact of the program has not been evaluated. The purpose of this study is to evaluate the benefits of the M2B program and identify potential improvement areas.

This is a retrospective, observational pre-/post- cohort study of pediatric patients. Patients admitted from October 1, 2016 – September 21, 2019, were assigned as the pre-M2B group. Patients admitted from October 1, 2019 – September 31, 2022, were assigned as the post-M2B group. The electronic health record was queried for patients admitted to pediatric floors with asthma, respiratory illness, diabetes, diabetic ketoacidosis, and seizures listed as their primary problem. Patients in the post-M2B group were also cross-referenced with prescription records from the community pharmacy. Patients were excluded if they were older than eighteen and discharged anywhere besides home. Patients were randomly selected from this list until 460 patients made up each group. A chart review was conducted to collect length of stay and 30-day readmission data. Results are pending. Independent t-test and chi-squared test will be used to analyze continuous and categorical data respectively. Statistical significance will be defined as $p < 0.05$. Ad hoc analyses will be conducted to evaluate the impact of pharmacist-led education and ascertain whether the M2B program or community pharmacy is increasing medication access.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of the 340B Medication Voucher Program in the AIMMC Emergency Department

Author: Ashley Seely

Primary Preceptor: Jodi Fugate

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Evaluation of the 340B Medication Voucher Program in the AIMMC Emergency Department

Ashley Seely, PharmD

PGY-1 Pharmacy Practice Resident

Advocate Illinois Masonic Medical Center

Purpose: Advocate Illinois Masonic Medical Center (AIMMC) serves a variety of patient populations, many of which do not have adequate access to insurance. As the cost of prescription medications continues to rise, disparities continue to exist for vulnerable patients who are underinsured. Effective transitions of care are often limited by cost-related underuse of prescription medications after a patient is discharged from the ED. According to Section 340B of the Public Health Service Act, drug manufacturers participating in Medicaid are required to provide outpatient drugs to eligible healthcare organizations at discounted prices. This program allows for AIMMC providers to supply medication vouchers to uninsured or underinsured patients who may subsequently receive their prescription at a discounted price through participating Walgreens locations. Although the 340B voucher program has been established at AIMMC for several years, further research is necessary to determine barriers or limitations with use of the voucher.

Methods: This is a prospective single-site observational analysis of the current 340B medication voucher program through the AIMMC emergency department. This study will assess the impact of the program on vulnerable patient populations being discharged with a 340B voucher and a new prescription. Data collection will take place from October 2022 through February 2023. The primary objective will be an assessment of successful voucher redemption at a participating Walgreens location. To assess the primary objective, patients will be contacted via telephone 3 days after discharge and surveyed. Secondary objectives include an analysis of drug cost, as well as re-admission to AIMMC. For patients who are lost to follow-up or not able to obtain the medication with the voucher, contact to the receiving pharmacy will be necessary to assess limitations. Once the trial period is complete, data will be compared between prescriptions in order to evaluate the utility of the 340B medication voucher program.

Results: Data collection ongoing.

Conclusion: Pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Andexanet alfa versus prothrombin complex concentrates for emergent procedural DOAC reversal

Author: Katie Sherman

Primary Preceptor: Kendall Mores

Institution: Northwestern Memorial Hospital

Abstract:

Andexanet alfa is modified factor Xa decoy protein indicated for reversal of direct oral anticoagulants (DOACs) rivaroxaban and apixaban. Its fast track approval in a small, single-armed study, the ANNEXA-4 trial, has called into question both safety and efficacy of this agent. Data is even more limited amongst the surgical population, as these patients were excluded from ANNEXA-4, and the ANNEXA-S trial intending to fill this gap was terminated early due to futility. Additionally, cases of heparin resistance reported after andexanet alfa administration may pose unique pharmacotherapuetic challenges for patients requiring heparin intra-procedurally. An institutional protocol for anticoagulation reversal at Northwestern Memorial Hospital (NMH) allows for off-label administration of andexanet alfa in surgical patients per provider discretion. The purpose of this study is to assess safety and efficacy of andexanet alfa versus prothrombin complex concentrates in the surgical population.

This is a single-center, retrospective study of adult patients admitted to NMH between May 1st, 2018 and September 30th, 2022. Patients were included if they were taking rivaroxaban or apixaban and received andexanet alfa or prothrombin complex concentrates prior to an emergent surgical or interventional procedure. Patients taking DOACs other than rivaroxaban or apixaban were excluded.

The primary outcome is adequate hemostasis, defined by stable hemoglobin and lack of need for additional coagulation factors, hemostatic agents, or transfusions at 48 hours post administration. Secondary outcomes include doses of reversal agents administered, need for repeat administration, use of adjunctive hemostatic agents, type and quantification of blood products transfused, incidences of bleeding and thrombosis, and incidences of heparin resistance, defined as administration of supplemental anti-thrombin III or the use of direct thrombin inhibitors. Other outcomes of interest will include ICU and hospital length of stay, as well as mortality.

Results and conclusions will be presented at the Illinois Pharmacy Residency Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Effects of Pharmacy-drive Education on Continuous vs. Intermittent Proton Pump Inhibitor Prescribing Patterns

Author: Justin Shiau

Primary Preceptor: Anna Niedzwiecki

Institution: Northwestern Medicine Central DuPage Hospital

Abstract:

Purpose: Proton pump inhibitors (PPIs) work by reducing the amount of stomach acid from the lining of the stomach. This can be helpful for many conditions including bleeding within the upper portion of the gastrointestinal tract. Intravenous PPIs can be dosed as either continuous infusions or intermittent pushes. Recent evidence and treatment guidelines have shown that administration of intermittent PPI pushes is non-inferior in treating upper gastrointestinal bleeds than continuous infusions. They are also more cost-effective. At Northwestern Medicine Central DuPage Hospital, continuous PPI infusions are still being prescribed despite evidence supporting intermittent pushes. This project aimed to evaluate whether pharmacy-driven education can impact prescribing patterns of PPI treatment in gastrointestinal bleeds.

Methods: This was a quality improvement project to promote the use of intermittent PPI therapy at a 408-bed community hospital and therefore did not necessitate IRB approval. A retrospective chart review of patients who received intermittent pantoprazole pushes or continuous infusions from October 2021 to October 2022 was performed. Using the Northwestern Medicine Enterprise Data Warehouse (EDW) system, baseline and discharge levels of hemoglobin, hematocrit, and platelets were obtained. For the prospective comparative group, the primary data point is the frequency of pharmacist education given to the provider to promote the use of intermittent PPI therapy. Secondary data includes baseline and discharge levels of hemoglobin, hematocrit, and platelets. Data collection is currently ongoing. Comparisons will be made using descriptive statistics.

Results: Data collection and analysis is currently ongoing with results planned to be presented at the 2023 Illinois Pharmacy Resident Conference.

Conclusion: Conclusion will be determined by results. This project and evaluation may also be used to assist in promoting the use of intermittent PPI therapy over continuous infusion and help increase cost-savings.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Identifying Barriers to Biosimilar Implementation at Northwestern Medicine

Author: Maureen Shin

Primary Preceptor: Christopher Leong

Institution: Northwestern Memorial Hospital

Abstract:

Biological products are an exponentially growing therapeutic class. In 2021, the FDA approved 50 new therapeutics, of which 9 were monoclonal antibodies. The increasing number of such products has led health systems to implement formulary management strategies to provide these biologics in an effective, safe, and fiscally responsible manner. It is estimated that from 2021-2025, the use of biosimilars will contribute to saving $38.4B across the USA. Projected savings from the use of trastuzumab (Herceptin) and bevacizumab (Avastin) biosimilars alone are $1.7B and $2B, respectively. Biosimilar development allows competitive pricing of these agents. Thus, biosimilar implementation is an appropriate strategy to broaden patient treatment options and reduce healthcare costs.

To support the successful implementation of preferred biosimilars at Northwestern Medicine Health Care (NMHC), a retrospective observational study will be conducted across all NMHC sites. This study will focus on two NMHC System formulary products: trastuzumab and bevacizumab and their biosimilars trastuzumab-anns (Kanjinti) and bevacizumab-awwb (MVASI), both designated as preferred formulary biosimilar products in July 2021. Data from January 1, 2022 to July 31, 2022 will be collected, reflecting 6 to 12 months post-formulary implementation.

Patients who have received at least two intravenous doses of trastuzumab, bevacizumab, or their respective biosimilars within the inpatient or outpatient setting will be included. The primary outcomes include the barriers for preferred biosimilar utilization, categorized as either insurance coverage, patient preference, provider preference, or no information. To identify these categories, de-identified data from subjects with available insurance information will have payor coverage assessed for coverage of the preferred biosimilar product. Patient charts will be further investigated to fill in necessary gaps of knowledge.

Our study aims to investigate the barriers to implementing biosimilars at NMHC to support further optimization of trastuzumab-anns and bevacizumab-awwb utilization as well as future preferred biosimilar product initiatives.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Identifying Factors that Influence the Selection of a PGY2 Ambulatory Care Residency Program

Author: Alexandra Statczar

Primary Preceptor: Christie Schumacher

Institution: Midwestern University, Chicago College of Pharmacy

Abstract:

Identifying Factors that Influence the Selection of a PGY2 Ambulatory Care Residency Program

Alexandra Statczar, PharmD, Christine Schumacher, Pharm.D., BCPS, BCACP, BCCP, BC-ADM, CDCES, FCCP, Jill S. Borchert, PharmD, BCACP, BCPS, FCCP, Ana C. Quinones-Boex, PhD, FAPhA

Purpose: A PGY2 in ambulatory care focuses on the advancement of essential knowledge and skills of an ambulatory care pharmacist including, comprehensive disease management for complex patients, management and leadership activities, and teaching and precepting activities. There have been many studies conducted that evaluate motivating factors for pharmacy students on pursuing a PGY1 residency program or fellowship, but currently no studies have been conducted to evaluate the factors driving the selection of a specific PGY2 ambulatory care pharmacy program. The primary objective of this study is to identify factors driving the selection of a specific PGY2 ambulatory care pharmacy residency program. Secondary objectives will include describing whether these driving factors have changed throughout the residency year, the impact of remote work in the selection of a PGY2 ambulatory care program, and the impact of resident well-being in the selection of a PGY2 ambulatory care program. The goal of this research project is to provide resources to new and current PGY2 ambulatory care programs to enhance program characteristics and satisfaction of their PGY2 ambulatory care program.

Methods: A web-based questionnaire will be designed in REDCap and electronically distributed to ASHP residency program directors (RPDs) of PGY2 ambulatory care programs using the ASHP residency program directory. The RPDs will be asked to forward the survey and reminder emails to their PGY2 ambulatory care residents. This will be a self-administered voluntary questionnaire with a combination of categorical, Likert, open-ended, and demographic survey questions. Skip logic will be used when assess secondary objectives. The survey will open for 6 weeks, and 3 email reminders will be sent out on weeks 2, 4, and 5. After the close of the survey, data will be compiled and analyzed and presented in aggregate.

Results/Conclusions: Research in progress.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Robotic Couriers for Medication Delivery

Author: Colton Staudt

Primary Preceptor: Mary Golf

Institution: Northwestern Memorial Hospital

Abstract:

Title: Evaluation of Robotic Couriers for Medication Delivery

Overview/Background (background information):

American Society of Health-System Pharmacists (ASHP) has been focusing on the future of pharmacy operations in hospitals and health systems for the last two decades. In 2010, ASHP hosted the Pharmacy Practice Initiative Summit where ASHP's Section of Pharmacy Informatics and Technology's Section Advisory Group on Pharmacy Operations Automation sought to provide guidance on the integration of robotics in acute care hospitals. There is minimal real-world application and impacts on pharmacy operations. We aim to describe our single center experience implementing a robotic courier distribution system.

Topics/Supporting Information (methods):

This is a quasi-experimental study that will examine the effects robotic couriers have on pharmacy operations at a 904-bed academic medical center from June 2022 to March 2023. Approximately 500 deliveries will be examined pre and post implementation of the robotic couriers. The primary outcome is the total time from medication request to medication drop-off (turnaround time). We aim to validate the implementation of robotic couriers and impact on pharmacy operations. Despite guidance on integration of robotics in hospitals, there is minimal literature to discuss the implementation of robotic couriers.

Results and conclusion are pending for abstract submission but will be included at the time of presentation.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the impact of pharmacist education sessions on continuous glucose monitor (CGM) dispensing rates in the community pharmacy setting.

Author: Farah Sukkari

Primary Preceptor: Christina Cross

Institution: Jewel – Osco Pharmacies

Midwestern University, College of Pharmacy Downers Grove Campus

Abstract:

Author: Farah Sukkari, PharmD. PGY-1 Community-based Pharmacy Resident.

Title: Evaluating the impact of pharmacist education sessions on continuous glucose monitor (CGM) dispensing rates in the community pharmacy setting.

Statement of the purpose: To determine the difference in continuous glucose monitoring (CGM) device dispensing rates between community pharmacies that receive an in-person educational session about CGM and those without the intervention.

Statement of methods used: This will be a prospective multicenter study and will be conducted from December 2022 to March 2023. There will be five pharmacies in the intervention group and five pharmacies in the control group. All ten pharmacies have similar characteristics including prescription sale counts, clinical performance metrics, and patient demographics. All pharmacists in the selected stores will be given the opportunity to participate. A pre-intervention survey will be conducted to assess the baseline CGM knowledge of the pharmacists in both groups. The intervention will be a one-time standardized in-person presentation provided by the primary investigator to the pharmacists in the intervention group and will last approximately 30 minutes. The educational presentation will include a stepwise approach of how to apply the CGM device. Pharmacists will also be trained on how to select the most appropriate device based on patient-specific characteristics, provide counseling to patients, and interpret result data from the device receiver. Post-intervention data will be analyzed to compare the dispensing rates between the intervention and control groups 3 months after the intervention to assess the impact of CGM device education to pharmacists.

Summary of results to support conclusion: Research currently in progress. We hope that providing formal CGM education for pharmacists will influence their recommendations to patients, thus increasing dispensing rates.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The impact of ARNI conversion on heart failure readmission rates: A guideline compliance study

Author: Katarzyna Szaflarska

Primary Preceptor: Sarah Zavala

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Purpose: Congestive heart failure (CHF) is prevalent among five percent of U.S. Veterans, and the annual mortality among those with CHF is 15%. Angiotensin antagonists have proven to have significant clinical benefits in reducing morbidity and mortality as well as decreasing CHF hospitalizations. Based on the updated AHA/ACC/HFSA Heart Failure Guidelines, angiotensin receptor-neprilysin inhibitors became the preferred agent over angiotensin-converting enzyme inhibitors (ACE-I) or angiotensin receptor blockers (ARB). This guideline compliance study aims to evaluate current practices of prescribing sacubitril/valsartan and serves as an opportunity for improvement in converting patients from ACE-Is or ARBs to ARNIs. The purpose of this study is to assess 30 day readmission rates in HFrEF patients who were converted to sacubitril/valsartan during hospital admission for CHF exacerbation compared to those that remained on an ACE-I or an ARB upon discharge from a Veteran Affairs Medical Center.

Methods: This study is a retrospective chart review of patients with HFrEF who were prescribed an ACE-I or an ARB prior to being admitted with a primary or secondary diagnosis of CHF between June 1, 2021 and May 31, 2022. The primary endpoint includes 30 day HF readmission rates in patients converted to sacubitril/valsartan compared to patients maintained on ACE-I or an ARB upon discharge. Multiple secondary endpoints will be collected, including patients: achieving target RAAS dose within three months from discharge; requiring a GMC, urgent care, or ED visit; hospitalized for adverse event from RAAS agent within three months following discharge; appropriately dose converted to sacubitril/valsartan; hospital length of stay; and all-cause mortality.

Results: Results and conclusions will be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Tramadol Use in Elderly Inpatients

Author: Abaigeal Tarpey

Primary Preceptor: Noreen Kelly

Institution: Advocate Lutheran General Hospital

Abstract:

Background: It appears that tramadol is often used as a first line agent to treat moderate to severe pain in the inpatient population at Lutheran General Hospital. There have been anecdotal reports that some patients have had delirium and/or poor pain control with the utilization of tramadol. Tramadol still appears in post-operative/pain control order sets and if it's truly causing many adverse drug reactions, it may be necessary to change order sets and provide education to induce changes in prescribing practice. This study aimed to analyze frequency and nature of adverse effects in elderly patients who were started on tramadol. Methods: A retrospective chart review of patients aged over 65 who were started on tramadol inpatient and admitted to Lutheran General Hospital between January 1st - December 31st, 2021, was conducted. Data points collected included: age, frequency and nature of AE (adverse effect), pain scores, doses (mg) to occurrence of AE, potentially contributing medications and disease states, and correlating Naranjo Adverse Drug Reaction Probability Score. Descriptive statistical methods were utilized. Results: Of patients that did experience an AE (n=54, 14%). The most common AE was CNS disturbances (26 adverse reactions) followed by poor pain control (16 adverse reactions) and hyponatremia (3 adverse reactions). The average Naranjo Adverse Drug Reaction Probability Score was 3.2, correlating to “possible” causation relationship between the AE and tramadol. Patients who experienced a CNS AE (n=26) consumed, on average, 175mg (3.5 tablets of 50mg strength) of tramadol before experiencing the AE. Frequency of AE seemed to disproportionally increase relative to sample population in patients aged over 86 years old. 20.3% of people who had an AE were over 65 years old. Finally, of patients who experienced a CNS AE, concomitant use of another opioid agent with tramadol was a risk factor for experiencing this AE.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the Safety and Efficacy of High-Dose Heparin for Venous Thromboembolism Prophylaxis in Morbidly Obese Hospitalized Patients

Author: Alex Tseng

Primary Preceptor: Alicia Juska

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose: Use of unfractionated heparin (UFH) for venous thromboembolism (VTE) prophylaxis is a common pharmacologic practice for hospitalized patients. The purpose of this study was to evaluate the efficacy of VTE prophylaxis with high-dose UFH versus standard-dose UFH in morbidly obese patients.

Methods: A single-center retrospective cohort study from December 1, 2021 - December 31, 2022 was conducted comparing high-dose versus standard-dose UFH in morbidly obese hospitalized patients. Participants were included in the study if they were 18 years old or older, had a BMI 40 kg/m2 or greater, and expected hospitalization greater than 48 hours. Patients were excluded from the study if they had malignancy, pregnancy, an admission diagnosis of VTE, or use of anticoagulation prior to hospitalization. Patients were treated with high-dose UFH with a weight of 100 kg or above and standard-dose UFH with a weight below 100 kg. The primary outcome was to evaluate the incidence of VTE, defined as a deep-vein thrombosis or pulmonary embolism either during hospitalization or within 90-days of discharge. Secondary outcomes included the incidence of bleeding.

Results: There were 44 patients in the high-dose UFH arm and 91 patients in the standard-dose UFH arm included in the study. The primary outcome occurred in zero patients (0%) in the high-dose UFH group versus two patients (2.19%) in the standard-dose UFH group (p= 0.15). In terms of the secondary outcome, bleeding occurred in three patients (6.82%) in the high-dose UFH group versus eight patients (8.79%) in the standard-dose UFH group (p= 0.69). There were two events (4.54%) of major bleeding in the high-dose UFH group versus one event (1.10%) in the standard-dose UFH group (p=0.31).

Conclusion: There was no significant difference in the incidence of VTE or bleeding when using high-dose UFH versus standard-dose UFH for VTE prophylaxis in morbidly obese patients.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Missed Doses of Chemical Prophylaxis in Adult Trauma Patients

Author: Michelle Tulchinskaya

Primary Preceptor: Amish Doshi

Institution: Advocate Lutheran General Hospital

Abstract:

Title: Evaluation of Missed Doses of Chemical Prophylaxis in Adult Trauma Patients

Purpose: For orthopedic trauma patients, venous thromboembolism (VTE) is a common complication during hospitalization. Without VTE prophylaxis, VTE incidence ranges from 40% to 60% after major orthopedic surgery. Interruption of chemoprophylaxis for a period of 24 hours is associated with an increased risk of VTE. Patients who miss two to four doses have 8.5 times higher DVT risk compared with patients with no missed doses. According to the WEST guidelines, pharmacologic prophylaxis should continue uninterrupted throughout the hospital stay for trauma patients that have no active bleed, solid organ injury, traumatic brain injury, or spinal cord injury. Currently, it is standard practice at Advocate Lutheran General Hospital to hold chemoprophylaxis in trauma patients before orthopedic surgeries. Often, surgery is delayed and chemoprophylaxis is held and not restarted in a timely manner. The aim of this study is to review chemoprophylaxis in orthopedic trauma patients, analyze the incidence of VTE events, present data to trauma service, and develop an education plan that adopts the WEST guidelines.

Methods: A retrospective review of orthopedic trauma patients was conducted from February 2020 to December of 2021. The primary endpoint is to evaluate the incidence of VTE rates with continuous and held chemoprophylaxis doses. Secondary endpoints include time to first chemoprophylaxis dose, reason of held dose, number of doses held, injury severity score (ISS), and length of stay.

Results and Conclusion: Analysis of results is still in progress but will be presented upon completion at Illinois Pharmacy Residency Conference in May 2022.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Efficacy and Safety of Biologic Therapies for the Treatment of Asthma at Jesse Brown VA Medical Center

Author: Richard Uram

Primary Preceptor: Jaclyn Ng

Institution: VA-Chicago, IL-Jesse Brown VA Medical Center

Abstract:

Efficacy and Safety of Biologic Therapies for the Treatment of Asthma at Jesse Brown VA Medical Center

Resident Investigator: Scott Uram, PharmD, BCACP

Principal Investigator: Jaclyn Ng, PharmD, BCACP

Co-Investigators: Molly Heneghan, PharmD, BCACP; Judith Toth, PharmD, BCACP, BCGP, BC-ADM, CDCES; Sindhu Abraham, PharmD, BCPS

Background: Treatment strategies for asthma involve inhaled corticosteroid (ICS)/long-acting beta2-agonist (LABA) and/or adjunctive therapy with a leukotriene receptor antagonist or long-acting muscarinic antagonist. Asthma is considered to be severe when risk factors for poor outcomes have been addressed and symptoms remain uncontrolled despite treatment with high-dose ICS-LABA or if continued high-dose ICS-LABA is required to prevent symptoms from becoming worse. A certain subset of patients with severe asthma have persistent symptoms and frequent exacerbations requiring repetitive bursts of oral corticosteroids (OCS) or maintenance treatment with OCS which have significant long-term side effects. In these patients, add-on therapy with a biologic agent can be beneficial. The purpose of this retrospective chart review is to assess whether add-on biologic therapy with mepolizumab, benralizumab, or dupilumab, is associated with a reduced number of asthma exacerbations in a population that is overall understudied with more risk factors for severe asthma.

Methods: This study will be a retrospective electronic chart review of patients at Jesse Brown VA Medical Center with a diagnosis of asthma who were prescribed either mepolizumab, benralizumab, or dupilumab. Study participants will be identified by obtaining a list of all patients who were prescribed a study biologic between November 1, 2015 to October 31, 2021. Patients will be used as their own controls to compare study endpoints before and after initiation of a biologic. The primary endpoint is the change in total number of clinically significant asthma events 12 months pre- and post-biologic therapy. A clinically significant asthma event is defined as a prescription for OCS for respiratory symptoms, or emergency department/urgent care visit, hospitalization, or unscheduled general medicine clinic appointment for respiratory complaints.

Results and conclusions to be presented at the Illinois Pharmacy Residency Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Clinical Outcomes of Vancomycin Area-Under-the-Curve Monitoring: A Quasi-Experimental Study

Author: Alina Viteri

Primary Preceptor: Natalie Tucker

Institution: HSHS St. John's Hospital - Hospital Sisters Health System

Abstract:

Previous studies that demonstrated decreased nephrotoxicity with area-under-the-curve (AUC) vancomycin dosing compared to trough monitoring used two levels and a spreadsheet model for calculating AUC. The purpose of this study is to evaluate if the same reduction in acute kidney injury (AKI) is achieved while using a single level Bayesian monitoring program.

This retrospective quasi-experiment is being performed at two sites within the same health system. The primary objective is to assess the rate of AKI between vancomycin dosed by trough monitoring as compared to AUC monitoring through the use of a Bayesian software program. Secondary objectives include mean daily dose of vancomycin, number of vancomycin levels, and severity of AKI. Patients will be included in the study if they are 18 years or older with at least one vancomycin concentration drawn. Patients will be excluded if they had a baseline serum creatine greater than 2 mg/dL, received renal replacement therapy of any type, or received > 1 dose of vancomycin prior to admission.

Based on a sample size analysis performed using GPOWER, in order to achieve a power of 0.95, a total sample size of 703 patients will be required. Patients will be matched 1:1 based on acute physiology and chronic health evaluation II (APACHE II) score and vancomycin indication. Matched data will be further analyzed to assess differences in primary and secondary outcomes between the two groups (trough vs AUC) using basic statistical methods such as means, percentages, t-tests, and chi-square tests. Multivariable logistic and Cox proportional hazards regression will be used to examine the independent association between the monitoring strategy (trough vs AUC) and nephrotoxicity. Data collection is still in process at this time.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Clinical Impact of Implementation of the Diabetes Distress Score Tool on Type 2 Diabetes Management in VA Outpatient Clinics

Author: Janki Vyas

Primary Preceptor: Nicholas Burge

Institution: VA - Hines, IL - Edward Hines, Jr. VA Hospital

Abstract:

Purpose: The self-management burden associated with type 2 diabetes mellitus (T2DM) can be overwhelming for patients. Significant diabetes distress can lead to dysregulation of blood glucose, higher A1cs, decreased medication adherence, missed provider appointments, and poorer quality of life. Diabetes Distress Scale (DDS), established in 2005, is a validated tool that assesses an individual's perception of resources available over the past 30 days for self-management of T2DM. The objective of this study is to evaluate the change in diabetes distress in the veteran population after meeting with clinical pharmacy specialists over a 9-month span. This research will allow pharmacists and other healthcare professionals to gain a deeper understanding of the domains most commonly causing distress in veterans with T2DM

Methods: This prospective study involves obtaining veterans' Diabetes Distress Scale (DDS) survey results at two community-based outpatient clinics (CBOC) within the Edward Hines, Jr. VA Hospital. Patients at least 18 years, and newly consulted to a clinical pharmacy specialist for the management of T2DM were included in the study. Participants will complete the DDS questionnaire at their initial clinic appointment and after 9 months. One CBOC Pharm.D. will review the DDS results to guide the patients accordingly while the second CBOC Pharm.D. will be blinded from the completed questionnaire to help determine if knowledge of DDS results affects the change in scores from initial and follow-up appointments

Results and Conclusion: Out of the total patients eligible for the initial DDS survey, 14 patients were enrolled and completed the initial DDS surveys. 9-month follow-up DDS survey results and statistical analysis are currently in progress and to be presented at the Illinois Pharmacy Resident Conference.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluation of Vancomycin Dosing in Obese Patients

Author: Evelyn Wang

Primary Preceptor: Mary Jane Sullivan

Institution: Rush University Medical Center

Abstract:

Vancomycin is a broad-spectrum antibiotic used in the empiric or targeted treatment of gram-positive bacterial infections. Vancomycin dosing in the obese patient population is controversial as there are many different approaches to optimizing therapeutic troughs while avoiding toxicities, most notably acute kidney injury and thrombocytopenia. Recent studies indicate lower maintenance doses may be appropriate for obese patients to achieve target troughs while minimizing toxicity. The purpose of this study is to evaluate the current Rush University Medical Center (RUMC) vancomycin dosing guidelines in the obese patient population to ensure vancomycin regimens achieve target trough concentrations of 10-20 mcg/mL for empiric treatment or 15-20 mcg/mL for confirmed methicillin-resistant Staphylococcus aureus (MRSA) infections or suspected central nervous system (CNS) infections. Clinical data will be extracted through retrospective chart review for patients who were at least 18 years of age, had a BMI of ≥ 30 kg/m2, received vancomycin for ≥ 48 hours, and had a trough obtained within 2 hours prior to the following vancomycin dose once at steady state. Patients who presented with acute kidney injury on vancomycin initiation, were pregnant, vancomycin initiation at an outside hospital or received doses outside of the RUMC guidelines were excluded from the study. The primary outcome to be evaluated will be vancomycin trough levels, identified as subtherapeutic, therapeutic or supratherapeutic in respect to the therapeutic goal of 10-20 mcg/mL. Secondary safety outcomes include the incidence of acute kidney injury and thrombocytopenia.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: The Effect of an Emergency Medicine Pharmacist on the Time to Antibiotics for Patients with Open Long Bone Fractures

Author: Ashley Wensing

Primary Preceptor: Zakarri Vinson

Institution: OSF Healthcare Saint Francis Medical Center and OSF Healthcare Children's Hospital of Illinois

Abstract:

Purpose: A goal of open fracture management is infection prevention. This is achieved by early administration of systemic antibiotics, which should be administered within one hour of presentation. Although studies have shown that the presence of emergency medicine pharmacists improves patient outcomes, the data regarding a pharmacist's impact on antibiotic timing and selection for open fractures is scarce. The primary purpose of this study is to evaluate the timeliness of prophylactic antibiotic administration in patients presenting to OSF Saint Francis (SFMC) and Saint Anthony Medical Center (SAMC) with open fractures and to determine if the presence of emergency medicine pharmacists improves this measure.

Methods: The design of this study is a multicenter, retrospective chart review using medical records at SFMC and SAMC from August 1, 2020 until August 31, 2022. The patients were identified by searching diagnostic code "open fractures" and ensuring these patients were initially treated in the emergency department with antibiotics. Once the patients were identified, information was collected on which patients received antibiotics within 1 hour of presentation and those who received antibiotics longer than 1 hour of presentation. These two groups were then further evaluated by determining if a pharmacist was present during the antibiotic selection process. A specific documentation was searched to evaluate if a pharmacist was or was not present. Patients >18 years old who presented with a type I, II, or III open fracture and received antibiotics at SFMC / SAMC's ED were included in this study. Patients were excluded if they had received antibiotics prior to ED arrival, but did not receive any antibiotics at SFMC / SAMC.

Results: pending

Conclusion: pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Impact of microbiology reporting changes in treatment of AmpC bloodstream infections

Author: Alec Wesolowski

Primary Preceptor: Jill Argotsinger

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Recent literature suggests that AmpC production may be overcalled in Enterobacterales, leading to unnecessary broad-spectrum antimicrobial utilization. Guidance from the Infectious Diseases Society of America (IDSA) has since reassessed classification of high and low risk organisms with inducible AmpC expression. With this updated guidance, our health system recently approved changes to our microbiology reporting of AmpC producing organisms in an effort to guide prescribing of appropriate antibiotics for these specific pathogens. The primary objective of this project is to assess compliance to updated IDSA guidelines and compare antibiotic prescribing patterns for high and low risk AmpC producing organisms in patients with bloodstream infections (BSI) based on the addition of appended comments to antimicrobial susceptibility results.

Methods: This multicenter, retrospective, cohort study included patients with positive blood cultures from October 2022 to April 2023 who received at least 48 hours of antimicrobial therapy for the following high and low risk AmpC producing organisms: Citrobacter spp., Enterobacter spp., Klebsiella aerogenes, Serratia spp., Morganella spp., Providencia spp. The appended comment was implemented in January 2023 at our health system and provides guidance on management of high and low risk AmpC producing organisms. The primary endpoint is the number of patients placed on optimal therapy based on adherence to the appended microbiology comment and IDSA guidance. Secondary endpoints include time to effective treatment, time to optimal treatment, time to blood culture clearance, duration of therapy, 30 day mortality, microbiological failure, microbiological relapse, 30 day readmission, length of stay, and acquired Clostridioides difficile infection.

Results and conclusion: Results will be presented at the Illinois Pharmacy Resident Conference in May 2023.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Development and Implementation of a Prior Authorization Workflow at an Interprofessional High-Risk Primary Care Office.

Author: Savannah Wills

Primary Preceptor: Matthey Biszewski

Institution: NorthShore University HealthSystem

Abstract:

Purpose: With rising healthcare costs, medication access is impeded by formulary restrictions. One of the barriers to medication access is the prior authorization (PA) process. Complex and differing insurance formularies make it difficult to determine criteria for a PA or whether a medication issue can be resolved without one. Current office staff receive numerous requests for all medication formulary issues. Currently, healthcare team members responsible for completing PA's have various levels of understanding and training which can make it difficult to determine if a PA is truly required. This creates the need for a streamlined process for all formulary medication issues to ensure efficient patient care. The primary objective of this project is to develop an improved PA workflow for formulary medication issues and create a reference tool for training the office staff to ensure successful PA submissions.

Methods: Team members in clinic were consulted to determine the current workflow and potential areas for improvement. A reference tool was created for team members to follow for common PA requests. The tool includes information required to complete the PA and instructions for navigating the patient's medical record. The tool also includes potential covered alternatives the insurance may prefer in the same medication class. The tool was shared with the office team members for feedback on format and usability. The final steps of the project will be to implement a new prior authorization process with defined roles for each team member, and create a procedure for maintaining and expanding the number of drugs included in the prior authorization reference tool by future pharmacy students and residents. The healthcare team's satisfaction with the enhanced PA workflow will be assessed for further improvements.

Results: Pending

Conclusion: Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Implementation of Gravimetric Verification Technology

Author: Jessica Young

Primary Preceptor: Hardik Patel

Institution: NorthShore University HealthSystem

Abstract:

Title: Implementation of Gravimetric Verification Technology

Authors: Jessica Young, PharmD and Hardik Patel, PharmD

Purpose: The Institute for Safe Medication Practices Targeted Medication Safety Best Practices for Hospitals Best Practice 11 recommends utilizing independent verification methods, such as gravimetric verification, when compounding sterile products. Gravimetric verification employs medication specific gravity, the measure of density as related to the density of water, and weight to determine the correct volume of a medication preparation. Medication specific gravities are not readily available; the data is not required to be in the package insert so alternate methods to obtain this information must be used. An article published in the American Journal of Health-System Pharmacy, by Amerine et al, determined there was no significant difference between calculating density versus measuring density. It was also determined that there can be slight variations in density among different manufacturers of the same drug and even variations between lot numbers of the same manufacturer. The purpose of this project is to implement gravimetric verification technology as a pilot program in a community hospital for compounding and dispensing pediatric medications using calculated specific gravity information.

Methods: A taskforce was created with pharmacists, technicians, and pharmacy leadership to oversee and provide input on operational considerations and selecting medications for the pilot. A report was generated of the most commonly dispensed intravenous compounded pediatric medications to identify medication compounds to use for this pilot. These medications were compared to a list of available calculated specific gravities. A scale was selected based on recommendations from the electronic health record (EHR) vendor. Approval was obtained from the information technology department to add the scale to the network to interface with the EHR. The scale was calibrated and tested once received. A workflow was created for compounding using gravimetrics and training will be provided to the pharmacy staff.

Results: Pending

Conclusion: Pending

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title: Evaluating the Appropriateness of Warfarin Therapy in Patients Enrolled in Anticoagulation Clinic

Author: Rawan Zayed

Primary Preceptor: Carol Chan

Institution: Franciscan Alliance

Abstract:

Purpose: Warfarin is an oral anticoagulant that prevents and treats venous thromboembolism (VTE). Warfarin's efficacy and safety critically depend on maintaining the INR within the target range for the patient's specific anticoagulation indication. It is essential that patients who are initiated on warfarin therapy have an appropriate INR goal and duration of therapy. This study aims to investigate whether warfarin therapy is appropriate for patients currently enrolled within this health system's anticoagulation clinics, and if these patients have appropriate indications for warfarin therapy. Additionally, the study will assess the appropriateness of the duration and goal INR ranges for the patient's indication.

Methods: This will be a multi-site retrospective study evaluating the appropriateness of warfarin for patients with the following indications: DVT, PE, or bioprosthetic valve. The primary outcome is to assess the appropriateness of anticoagulation therapy (indication, duration, goal INR) for patients enrolled in one of seven anticoagulation clinics per the American College of Chest Physicians (CHEST) guidelines. A sub-analysis will be conducted to further investigate time-in-therapeutic range (TTR), adverse events, and individual components of the primary outcome (indication, duration, goal INR). Patients will be excluded from the study if they have not been enrolled in the anticoagulation clinic for at least 3 months or are on warfarin for indications that require long term anticoagulation (i.e., atrial fibrillation, mechanical heart valve). The following data will be collected: length of time enrolled in ACC, patient demographics (including age and gender), CBC, labs (creatinine, creatinine clearance, INR, prothrombin time (PTT)), warfarin indication, duration of therapy listed on provider referral, goal INR range, TTR, adverse events, bleeding events and categorization of bleeding events per the American Heart Association (AHA). Descriptive statistics will be used to report the data and evaluate trends.

Results: Pending.

Conclusion: Pending.

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title:

Author:

Primary Preceptor:

Institution:

Abstract:

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title:

Author:

Primary Preceptor:

Institution:

Abstract:

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title:

Author:

Primary Preceptor:

Institution:

Abstract:

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title:

Author:

Primary Preceptor:

Institution:

Abstract:

2023 Illinois Pharmacy Resident Conference
Presentation Abstracts

Title:

Author:

Primary Preceptor:

Institution:

Abstract: