2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Safety Review of Anticoagulation Practices During Catheter-Directed Thrombolysis for Pulmonary Embolism

Author: Marissa Agnello

Primary Preceptor: Julie Baldassarra

Institution: Rush University Medical Center

Abstract:

Purpose

Pulmonary embolism (PE) is a major cause of cardiovascular mortality, with an estimated 100,000 related deaths in the Unites States each year. Utilizing systemic thrombolytic therapy for submassive PE has been shown to improve hemodynamic parameters but increases complications such as major bleeding. Catheter-directed thrombolysis (CDT) is an alternative to systemic thrombolysis that delivers therapy directly to the embolism, allowing the administration of thrombolytics at a lower dose. Within studies of CDT, anticoagulation practices have varied. The purpose of this study is to evaluate anticoagulation therapy in patients receiving CDT at Rush University Medical Center (RUMC) to determine if there is a difference in the incidence of bleeding and thrombotic outcomes in those receiving therapeutic anticoagulation compared with those receiving lower doses of anticoagulation.

Methods

This investigation was a single-center, retrospective, observational cohort study. Data collected was the result of routine care. Adult patients who received CDT for massive or submassive PE at RUMC from January 2020 through September 2023 were assessed for inclusion. The electronic medical record system was used to collect data including patient age, gender, BMI, race, daily hemoglobin, platelet, and aPTT values, information on anticoagulation and thrombolysis therapy utilized, and data related to bleeding events (type, location, timing, and interventions performed). ICU and hospital length of stay and in-hospital mortality data were also collected.

The primary outcome was the incidence of major bleeding defined by the ISTH criteria for non-surgical patients. Secondary outcomes included recurrence of PE, need for escalation of care, ICU length of stay, hospital length of stay, and in-hospital mortality. The incidence of the primary outcome was evaluated using descriptive statistics. Results for continuous variables were compared to baseline using a paired t-test and results for categorical data were compared using a chi-square or Fisher's Exact test.

Results

Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Apixaban versus Warfarin for Treatment of Venous Thromboembolism in Patients with Severe Renal Impairment: A Multicenter Study

Author: Kulsoom Ahmed

Primary Preceptor: Kathleen Koopman

Institution: Alexian Brothers Medical Center

Abstract:

Venous thromboembolism (VTE) is a common vascular disorder, affecting more than one in twelve individuals during their lifetime. Recent literature suggests benefits such as reduced renal clearance and incidence of bleeding with apixaban compared to warfarin for VTE treatment in patients with renal impairment (creatinine clearance < 30 mL/min), however further data is needed. The goal of this study is to examine the efficacy and safety of apixaban versus warfarin for the treatment of VTE in patients with severe renal impairment.

This is a multicenter, retrospective, observational cohort study comparing the use of apixaban and warfarin for VTE treatment in patients with severe renal impairment conducted across 35 Ascension Health sites. Adult patients with severe renal impairment, chronic kidney disease (CKD) stages four and five, end-stage renal disease (ESRD), are undergoing hemodialysis (HD) or peritoneal dialysis (PD), who are admitted to the hospital with a new VTE diagnosis and are treated with apixaban or warfarin will be included in the study. Patients with a history of mechanical valve replacement, moderate or severe mitral valve stenosis, coagulopathy, require continuous renal replacement therapy, have severe liver disease, take contraindicated interacting medications, or who are pregnant will be excluded. The primary outcome measure of this study is the time to first composite bleeding event, defined as major and clinically relevant non-major bleeding (CRNMB), in apixaban vs. warfarin. The electronic medical record system will be used to collect baseline characteristics, comorbidities, concomitant medications, time to first composite bleeding event, time to recurrent VTE event, and mortality. Patients will be followed for up to six months post index event or until the anticoagulant is discontinued or switched. As of the time of this abstract submission, data collection is still in progress.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Identifying Gaps in Employment Strategies for Pharmacy Team Members

Author: Ayesha Alaidroos

Primary Preceptor: Justin Andreasik

Institution: Advocate Good Shepherd Hospital

Abstract:

Purpose: The purpose of this study is to identify effective recruitment strategies for attracting employees, including Generation Z, to pharmacy jobs, addressing the challenges posed by declining enrollment in pharmacy schools and shortages of pharmacy professionals. It aims to explore best practices employed by other industries in successfully recruiting Generation Z workers and apply these strategies to the pharmacy workforce.

Methods: The study conducted a comprehensive review of recruitment practices and workforce trends across various industries, including technology, hospitality, retail, and entertainment. Data sources included industry reports, case studies, and surveys from reputable organizations such as Deloitte, ASHP, and the American Hospital Association. The methods involved synthesizing key insights and identifying common themes and strategies that have proven successful in recruiting Generation Z employees.

Results: The results of the study revealed several effective recruitment strategies for attracting Generation Z employees to pharmacy jobs. These strategies include offering competitive compensation and benefits packages, providing flexible work arrangements, emphasizing opportunities for career development and advancement, showcasing a strong company culture focused on diversity and inclusion, and leveraging digital platforms and social media for recruitment outreach. By adopting these best practices, pharmacy organizations can effectively attract and retain Generation Z talent, ensuring a skilled and diverse workforce to meet the evolving needs of the healthcare industry.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of Patient Self-Reporting of Medication Histories to Improve Emergency Department Medication Reconciliation

Author: Joseph Albarran

Primary Preceptor: Meghan Soso

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

Abstract:

Purpose: Due to the large number of patients who present to Advocate Health emergency departments, there is frequently a backlog of patients being admitted to the department who are required to wait extended periods of time to be registered and receive treatment. Simultaneously, pharmacy medication history technicians are tasked with obtaining prior-to-admission medication histories for these admitted patients. The goal of this project is to analyze the impact on efficiency and accuracy of pharmacy technician medication history collection upon implementing an electronic self-registration application in the emergency department for patients to report their medication histories.

Methods: This project is an observational, proof-of-concept study that assesses the accessibility and utility of an electronic pharmacy self-registration application for eligible patients presenting to the emergency department at two large medical centers. Patients were excluded if they were under the age of 18, assigned an Emergency Severity Index (ESI) of 1, recorded as having an activated power of attorney on file, or are under custody of law enforcement. Six weeks after application implementation, data related to efficiency and utility of the self-registration application was collected for 4 weeks via an electronic survey, which was completed by pharmacy medication history technicians upon collection of patient medication histories. Primary objectives are to assess the number of medication histories completed within 6 and 24 hours of admission compared to pre-application implementation, rates of patient enrollment in medication history self-reporting, and frequency of medication errors avoided due to medication history collection in patients utilizing self-registration. Secondary endpoints include assessing the number of medications added or removed to a medication list after medication history collection by a pharmacy technician, and number of discrepancies discovered during pharmacy technician medication history collection.

Results: Pending

Conclusions: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Retail Pharmacy Meds to Beds with Ambulatory Pharmacotherapy Clinic Services on 30 Day Readmission Rates at a Community Hospital

Author: Sarju Amin

Primary Preceptor: Andrius Cepenas

Institution: Ascension Saint Mary - Chicago

Abstract:

There is an opportunity to explore literature in the health system to see if patients receiving multiple pharmacy-driven services (Meds to Beds and Pharmacotherapy Clinic post-discharge follow-ups) will lead to further reduction in 30 day readmission rates. The purpose of this study is to assess 30 day readmission rates between the three groups: patients that received Meds to Beds (MTB) and Pharmacotherapy Clinic visits (PC), patients that received MTB only at discharge, and general house-wide readmission.

This study is a retrospective chart review design. A total of 600 patients (200 patients into each of the three groups) who were hospitalized at Ascension Saint Joseph Chicago (SJC), Ascension Saint Mary Chicago (SMC), or Ascension Saint Francis (SFH) from January 1st, 2021 to June 30th, 2023 were reviewed through electronic data reporting tools to identify if they received MTB or a PC post-discharge visit. Patients included were 18 years old or older, received MTB and/or PC services at one of the hospitals aforementioned, or received no pharmacy services after being discharged from the aforementioned hospitals. Exclusion criteria includes patients that received MTB from the Emergency Department, discharged with no chronic medications, patients that are following at PC for post-discharge visits but did not receive MTB, those that followed-up at PC prior to initial hospitalization, pregnant, lactating, or pediatric patients.

The primary outcome is assessing 30 day readmission rates between the three groups. Secondary outcomes include assessing 30 day readmission based on admission diagnosis (by disease states), those that received medication assistance, based on hospitalization location, and based on risk stratification for readmission via HOSPITAL score. Preliminary results show that 9% of patients in the MTB + PC group had a 30 day readmission, compared to 10.5% in the MTB only group. Final results will be presented at the conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Accuracy of Provider Selection of Indication and Restriction Criteria For Inpatient Fluoroquinolone Orders

Author: Giovanni Baca

Primary Preceptor: Jessica Miller

Institution: Advocate Lutheran General Hospital

Abstract:

Title: Accuracy of Provider Selection of Indication and Restriction Criteria For Inpatient Fluoroquinolone Orders

Purpose: Fluoroquinolones are broad-spectrum antimicrobials that are common targets for antimicrobial stewardship programs (ASPs) due to the risks associated with their use such as development of resistance and various adverse reactions. Prospective audit and feedback and preauthorization are the two most effective stewardship strategies. Requiring indications upon order entry can facilitate tracking of fluoroquinolone utilization and improve prescribing through prospective audit and feedback allowing ASPs to intervene on antimicrobial selection when appropriate. Implementation of restriction programs through preauthorization has also been shown to decrease fluroquinolone utilization and improve appropriateness of prescribing. This study evaluates the accuracy of provider selected indications and restriction criteria upon order entry of fluroquinolones.

Methods: A retrospective chart review of all patients that presented to a hospital within Advocate Health Midwest Region that were prescribed ciprofloxacin, levofloxacin, or moxifloxacin during September 2023 was conducted. The primary outcome was the number of patients with matching indication selection on order entry and diagnosis. Secondary outcomes included the number of patients with matching restriction use criteria selection on order entry and patient risk factors or documented infection, appropriateness of fluoroquinolone utilization, and total duration of therapy.

Results and Conclusion: Results will be presented at the Illinois Pharmacy Resident Conference in May 2024.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of the impact of two carboplatin dose calculation methods on overall treatment tolerability in gynecologic oncology patients

Author: Paulina Bakalina

Primary Preceptor: Hannah DeLuna

Institution: NorthShore University HealthSystem

Abstract:

Purpose: Carboplatin dosing, based on the Calvert formula, utilizes the desired area under the curve (AUC) and the patient's estimated glomerular filtration rate (eGFR). In addition to dose capping at 125 mL/min, the Gynecologic Oncology Group (GOG) recommends using adjusted body weight for body mass index (BMI) ≥ 25 kg/m2 and minimum serum creatinine (SCr) of 0.7 mg/dL. The gynecologic oncology department at a community cancer center has switched from the GOG recommendation to using actual SCr when determining carboplatin dose. The purpose of this evaluation is to assess the impact on patient treatment subsequent to change in carboplatin dose calculations.

Methods: A retrospective electronic health record review will be performed for gynecologic oncology patients at a community cancer center for a time period before and after the change in method of carboplatin dosing calculation. All gynecologic oncology patients with planned cycles of carboplatin AUC 5-6 and paclitaxel will be included. Patients enrolled in clinical trials will be excluded. The following data points will be collected at each cycle: AUC, cycle length, actual SCr and Scr used for carboplatin dosing, colony stimulating growth factor usage (G-CSF), paclitaxel dose, weight, and height. The primary objective is to evaluate the impact of the two carboplatin dosing methods on the need for dose reduction, treatment delays or G-CSF usage. The secondary objective is to compare the percent of each treatment modification type in pre versus post implementation group This medication use evaluation is classified as a quality assurance project and is exempt from Institutional Review Board approval. Descriptive statistics will be used to analyze the data.

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

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing the Impact of a Meds-to-Beds Program on 30 day Readmission Rate

Author: Ryan Barrera

Primary Preceptor: Salma Ziauddin

Institution: Ascension Resurrection

Abstract:

Purpose:

Meds-to-Beds (M2B) is a service that delivers medications directly to a patient's room prior to discharge. M2B programs were created in wake of the Hospital Readmissions Reduction Program (HRRP), which promotes transitions of care for discharged patients in an attempt to reduce avoidable readmissions. The purpose of this study was to assess the impact of M2B services and a focused Transitions of Care (TOC) pharmacist consultation on hospital 30-day readmission rate.

Methods:

This was a single-center, retrospective chart review that took place between June 2022 and June 2023. The primary outcome investigated the 30-day readmission rates between patients who accepted versus declined a M2B delivery service, with and without TOC pharmacist counseling. The secondary outcome compared the 90 day readmission rates between the same groups. Patients included in this study were > 18 years old and admitted to inpatient care from home. Exclusion criteria included patients discharged to an assisted living facility, admitted to an observation unit, and who expired during admission or within 90 days of discharge.

Results and Discussion:

Preliminary review of the results showed patients receiving M2B services exhibited a 12% 30-day readmission rate compared to a 22% 30-day readmission rate for those who did not utilize M2B services. The M2B 90-day readmission rate was 13% compared to 22% in the non-M2B group. Further analysis is being performed to assess the impact of TOC counseling on these readmission rates.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Effect of BioFire® BCID2 versus MALDI-TOF MS on time to optimal therapy in patients with positive blood cultures

Author: Alexandria Baum

Primary Preceptor: Jill Argotsinger

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Rapid diagnostic technology is an important tool that can be used to optimize antimicrobial therapy in a timely manner. This is especially useful for bloodstream infections (BSI) as rapid diagnostics coupled with antimicrobial stewardship decreases time to effective and optimal therapy improving patient outcomes. Several different technologies for rapid organism identification exist including matrix-assisted laser desorption/ionization-time of flight mass spectrometry (MALDI-TOF MS) and the Blood Culture Identification 2 (BCID2) panel. The primary objective of this project is to compare time to optimal antimicrobial therapy with MALDI-TOF MS vs BioFire® FilmArray® BCID2 Panel rapid diagnostic systems for patients with positive blood culture results.

Methods: This multicenter, retrospective, cohort study included patients with a positive blood culture with identification via MALDI-TOF MS (June 1st – June 7th, 2021) compared to identification via BCID2 panel (June 1st – June 7th, 2022). Patients were excluded if expired or discharged before organism identification, transferred from an outside hospital with a positive blood culture, or if rapid diagnostics not performed, had an uncommon pathogen, or polymicrobial infection. The primary endpoint was the time to optimal therapy (TTOT) which was defined as the most appropriate treatment option for the given organism and source utilizing the antimicrobial stewardship (ASP) approved bacteremia guideline. Secondary outcomes include time to effective therapy (TTET) defined by any regimen active against the causative pathogen as defined by culture susceptibility, length of stay, time to clearance of blood cultures and clinical failure defined as recurrence of bacteremia within 30 days, in-hospital mortality, and microbiology success seen through documented culture clearance.

Results and conclusion: Results will be presented at the Illinois Pharmacy Resident Conference in May 2024.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Effects of Social Deprivation Factors on Prescribing Practices for Antihyperglycemic Therapy

Author: Deepali Bhandari

Primary Preceptor: Elizabeth Van Dril

Institution: University of Illinois at Chicago College of Pharmacy

Abstract:

Purpose:

Type 2 diabetes mellitus (T2D) is a chronic metabolic disease which may be treated with various glucose-lowering therapies. Despite current literature and updated recommendations from the American Diabetes Association and other professional societies, clinical inertia in the intensification of glucose-lowering therapy remains high and racial, ethnic, and socioeconomic disparities exist in optimizing diabetes care. This study will investigate prescribing practices to determine if there is an association between the time to intensification of glucose-lowering therapy and socioeconomic deprivation factors for persons with T2D not meeting glycemic targets.

Methods:

This study is a retrospective cohort review of persons with T2D receiving outpatient primary care at the University of Illinois Hospital and Health Sciences System between January 1, 2010 and September 30, 2023. The primary outcome is the time to intensification of glucose-lowering therapy after an identified A1C elevation above age-specified A1C target (goal <7% for all persons <65 years and goal <8% for all persons ≥65 years). The outcome will be compared using the social deprivation index (SDI) and area deprivation index (ADI) to measure the individual's level of deprivation and the time to event occurrence. Secondary outcomes will investigate the effect of multiple covariates (patient and prescriber characteristics) on the time to event occurrence. Cox proportional-hazards regression will be performed to explore the relationship between SDI and ADI and the time to glucose-lowering therapy intensification while controlling for potential confounding variables. Multivariate analyses will be used to examine the impact of variables on the time to glucose-lowering therapy intensification.

Results and Conclusion:

Preliminary data collected for 116,255 unique individuals. Full results and conclusion pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the clinical, safety, and financial impacts of cefazolin for perioperative prophylaxis in patients with a penicillin allergy label (PAL) at a Veterans Affairs (VA) Hospital

Author: Justyna Bielak

Primary Preceptor: Ursula Patel

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

Abstract:

Authors:

Justyna Bielak, PharmD

Ursula Patel, PharmD, BCPS, BCIDP, AAHIVP

Marco Zambrano, PharmD, BCPS

Purpose:

Penicillin allergy labels (PAL) are frequently encountered in the medical history of surgical patients who require perioperative antimicrobial prophylaxis. Cefazolin is the drug of choice for many surgical procedures, while broader spectrum second-line antibiotics (e.g., vancomycin, clindamycin) are recommended in patients with PAL. Recent literature suggests that the use of second-line perioperative antimicrobials increases the risk of surgical site infections (SSIs), adverse effects, and excess costs. Additionally, the safe and effective use of cefazolin in patients with PAL has been described in literature given the low risk of cross-reactivity. As a result, the Edward Hines, Jr. Veterans Affairs Hospital launched a revised perioperative antimicrobial prophylaxis guideline to encourage use of cefazolin as the drug of choice for perioperative prophylaxis in patients with PAL. The purpose of this study is to determine if the implementation of the revised guidelines leads to improved clinical, safety, and financial outcomes amongst surgical patients with PAL.

Methods:

A quasi-experimental study will be conducted that will include adult veterans (≥ 18 years of age) with a beta lactam allergy who underwent an elective surgical procedure and received perioperative antibiotic

prophylaxis between January 2023 and April 2024. Patients will be placed in either a pre- or post-intervention group depending on timing of surgery. The two groups will be compared based on the frequency of cefazolin versus second-line perioperative antimicrobial ordering and adverse clinical outcomes, such as acute kidney injuries, Clostridium difficile infections, hospital length-of-stay, and hospital readmission due to SSI. Patient charts will be reviewed in the Computerized Patient Record System. All statistical analyses will be completed using Microsoft Excel.

Results/Conclusion:

Results and conclusions to be presented at the conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Safety and Efficacy of Levetiracetam Dosing Strategies in Status Epilepticus Refractory to Benzodiazepine Intervention

Author: Katarzyna Blair

Primary Preceptor: Giles Slocum

Institution: Rush University Medical Center

Abstract:

Background: Status epilepticus is a medical emergency which requires rapid intervention. It occurs among all age groups with an annual incidence of 200,000 cases. Benzodiazepines are first line treatment. In cases where benzodiazepines are not successful at seizure cessation, second line agents, such as levetiracetam can be used. There have been several trials which attempted to determine superiority amongst antiepileptic agents, but to date, there have been no clinically or statistically significant findings showing superiority of one intravenous antiepileptic over another. Levetiracetam, with its rapid infusion times, minimal drug interactions and negligible impact on hemodynamics, stands out as an appealing option. However, the optimal dosing of levetiracetam for status epilepticus remains debatable. Historically, a dose of 20mg/kg (low-dose) was considered adequate for management of status epilepticus, but over the past decade, dosages have increased to 60 mg/kg (high-dose) without evidence demonstrating superior efficacy over lower dosing regimens. This trial's purpose is to determine if low-dose levetiracetam is as effective in the cessation of seizures as high-dose levetiracetam.

Methods:

This is a retrospective, observational cohort study assessing patients treated with a loading dose of levetiracetam for benzodiazepine refractory status epilepticus in the emergency department between July 2013 and June 2023. The primary outcome was seizure cessation within 30 minutes of levetiracetam infusion. Secondary outcomes include: incidence of hypotension within 60 minutes of levetiracetam administration, seizure recurrence within 12 hours of levetiracetam administration, incidence of intubation, and ICU length of stay. Data collected included patient characteristics, lorazepam dose, levetiracetam dose, antiepileptic administrations, blood pressure, and heart rate. Chi-Square and Mann-Whitney U tests were used.

Results: Pending

Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the Impact of Best Practice Education and Weekly Controlled Substance Inventory on Drug Diversion Prevention and Detection in a Community Teaching Hospital

Author: Mitchell Bokowy

Primary Preceptor: Justine Viloria

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose: ASHP released updated Guidelines on Preventing Diversion of Controlled

Substances in 2022 to improve controlled substance practices. Despite recommendation review and careful surveillance of controlled substances, discrepancies persist. These often result from improper documentation in automated dispensing cabinets (ADCs) and the electronic health record (EHR) rather than drug diversion. This study aims to evaluate the impact of targeted education and a new inventory policy and workflow on the incidence of discrepancies.

Methods: A single-center, pre-post intervention study was conducted at a community teaching hospital utilizing electronic ADC reports from March 1, 2023 through March 31, 2024. This study included transactions involving DEA scheduled II-V drugs from all ADCs and anesthesia carts. In September, in-services and educational aids were provided to nursing and pharmacy staff reviewing important aspects of ADC use, discrepancy resolution, documentation, controlled substance waste, return of unused controlled substances, and recognizing potential drug impairment among colleagues. A new inventory policy was implemented which requires weekly counts in ADCs on nursing units, excluding surgical units. Primary endpoints included the percentages of controlled substance dispenses resulting in ADC discrepancies and unreconciled transactions. Secondary endpoints assessed compliance with new weekly inventory, time taken to resolve a discrepancy post-ADC removal, documented reason for each discrepancy, and timeliness of controlled drug waste in the EHR following ADC removal.

Results: For the pre-implementation phase, average monthly discrepancies and unreconciled transactions represented 0.69% and 4.32% of 77,907 controlled substance dispenses that occurred, respectively. Waste documentation within two hours and resolving discrepancies within 24 hours were 61.1% and 86.5%, respectively. Average weekly inventory compliance rate in October was 51%.

Conclusion: Conclusion is pending statistical analysis after completion of post-implementation phase data collection.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Effects of Ketamine on Opioid Analgesia Requirements in Adult Patients in the Intensive Care Unit

Author: Kendra Bourland

Primary Preceptor: Bryant McNeely

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

Abstract:

Purpose: Ketamine is a general anesthetic that provides dose-dependent analgesia and sedation effects. Previous trials evaluating the use of ketamine for patients admitted to the intensive care unit (ICU) have shown a reduction in average opioid requirements and a potential benefit with respect to pain control. The recommendations for the use of ketamine as an opioid-sparing analgesia for improved pain control are based on a low quantity of evidence. This study aims to assess the impact of ketamine on opioid analgesia requirements for mechanically ventilated adult patients in the ICU. Methods: This will be a single-center, retrospective chart review of adult patients admitted to the ICU in whom ketamine was initiated at doses greater than or equal to 1 mg/kg/hour. The primary outcome will assess the change in parenteral and/or enteral opioid requirements for analgesia by comparing the total morphine milliequivalents at baseline (i.e., 24 hours before the initiation of ketamine) and at the 6-hour, 12-hour, and 24-hour marks following the initiation of ketamine. The secondary outcomes assessed will include changes in sedation achievement before and at each window of time assessed after ketamine initiation using the Richard Agitation Sedation Scale for sedation in non-paralyzed patients or the bispectral index for paralyzed patients. Changes in pain achievement will be assessed using the Critical Care Pain Observation Tool. Additional outcomes will include adverse drug effects of ketamine, change in vasopressor requirements using norepinephrine equivalence, and average time spent on the ventilator. A subgroup analysis will be conducted that will include patients on a neuromuscular blocking agent. Patients will be identified using reports generated from the electronic medical record without collecting protected health information data. This data will be filtered based on the presence of ketamine, opioid(s), sedation agent(s), and/or continuous infusion of a neuromuscular blockade agent. Results: Pending. Conclusions: Pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing Tobacco Cessation Success Rates and Pharmacist Involvement at a Federal Health Care Center (FHCC)

Author: Megan Breier

Primary Preceptor: Aeman Choudhury

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

Abstract:

Purpose: Historically, tobacco use has been accepted, accommodated, and promoted to men who served in the military. The Captain James A. Lovell pharmacists are involved in tobacco cessation efforts for veterans. The success rates of tobacco cessation and the impact of pharmacist involvement on tobacco cessation at FHCC is not currently known to this facility. The objective of this study is to assess the success rates of attempted smoking cessation efforts by veterans within FHCC and to determine the effect of pharmacist involvement on tobacco cessation attempts.

Methods: The hypothesis of the study is that pharmacist-involved smoking cessation efforts lead to more successful quit attempt than smoking cessation efforts without pharmacist involvement. This is a retrospective chart review analyzing veteran tobacco cessation rates within FHCC. Data will be collected through the veteran's electronic medical record (EMR) from September 2022 to September 2023. The primary outcome of the study is the success rate of tobacco cessation attempts and pharmacist involvement in tobacco cessation attempts for veterans at FHCC. The secondary outcomes include which smoking cessation products were used, the number of encounters for smoking cessation by a pharmacist during the study period, and the number of cognitive behavioral therapy encounters during the quit attempt. This study will include veterans who are 18 years and older and who have a least one outpatient order for a smoking cessation products through FHCC (bupropion, varenicline, nicotine replacement therapies). Exclusion criteria include death during the study period and bupropion for another indication other than smoking cessation. Veterans who are eligible for the study will be reviewed through the EMR and their information will be entered into Excel for data collection. Descriptive statistics will be used to analyze the data.

Results: Data collection and analysis are pending, but will be completed by time of presentation.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Outcomes Comparing Daptomycin with Vancomycin in Patients Receiving Outpatient Parenteral Antimicrobial Therapy for Bone and Joint Infections

Author: Cierra Brewer

Primary Preceptor: Andrea Beshalske

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

Abstract:

Background: Bone and joint infections such as acute osteomyelitis, septic arthritis and prosthetic joint infections (PJI) often require extended courses of intravenous antimicrobial therapy. Common bacteria that cause these infections include gram-positive cocci and gram-negative bacilli, with the most likely gram-positive causes being Staphylococcus spp., Streptococcus spp., or Enterococcus spp. Infections due to gram-positive organisms may be treated with daptomycin or vancomycin depending on the antibiotic resistance and patient specific factors. There are limited studies comparing vancomycin with daptomycin for the treatment of bone and joint infections in an outpatient setting, although the available literature point to daptomycin being the preferable agent due to decreased adverse events and patient preference. The purpose of this study is to compare the rates of treatment failure and adverse events between vancomycin and daptomycin in patients receiving OPAT for bone and joint infections involving gram-positive organisms in a veteran population.

Methods: This study is a retrospective, chart-review of patients with bone and joint infections who received either daptomycin or vancomycin as part of an OPAT regimen through the JBVAMC OPAT program. All veterans at JBVAMC receiving vancomycin or daptomycin between March 8, 2009, and July 31, 2022, will be electronically identified. A chart review will be completed to identify patients who meet inclusion and exclusion criteria. The primary outcome is treatment failure within 12 months of completion of outpatient parenteral antimicrobial therapy. Treatment failure is defined as readmission to JBVAMC with recurrent osteomyelitis, change in antimicrobial therapy due to adverse reactions, or amputation of the same site within twelve months of completion of OPAT.

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

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pharmacist initiated electrolyte replacement standing order for adult general medicine patients

Author: Kari Brewton

Primary Preceptor: Karen Kelly

Institution: NorthShore University HealthSystem

Abstract:

Purpose: Hypokalemia is a common electrolyte abnormality seen in clinical practice. Hypokalemia may cause a variety of cardiac dysrhythmias, significant muscle weakness, paralysis, respiratory failure, nausea/vomiting, and PR and QT prolongation. Hypomagnesium may also occur which can worsen hypokalemia and increase the risk of cardiac dysrhythmias. Low levels of both electrolytes increases the risk of torsades de pointes, especially if the patient is receiving concomitant therapy with QT-prolonging agents. When patients are admitted to the hospital, their electrolytes are typically monitored daily. Pharmacists can assess these electrolyte levels and determine the need to order medications to replenish these electrolyte levels. This standing order process is proposed to give pharmacists the ability to order electrolyte replacement for patients, based on an approved guideline that recommends doses based on resultant serum electrolyte levels. The goal of this standing order is to allow for a shared responsibility between physicians and pharmacists to replace patient electrolytes to improve patient safety.

Methods: A standing order was created by reviewing and revising guidelines within our health system as well as other health systems similar to our patient population and geographical location. The standing order was reviewed and approved by a working group of physicians and pharmacists who provide clinical care to adult general medicine patients within our health system. The workflow identified for this process focuses on pharmacists reviewing patient charts via electronic medical records to identify patients that would meet criteria for replacement. Once a patient is identified for needing replacement electrolytes, the pharmacist can order the correct amount indicated on the standing order and write a note in the patient's chart alerting the team of their actions. Clinical decision support within the electronic medical record to assist with this practice is in process.

Results: pending

Conclusion: pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimization and Implementation of a Reverse Distribution Process at Advocate Health-Midwest Region

Author: Alexandra Cannon

Primary Preceptor: Christian Holm

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: The purpose of this project is to evaluate the current reverse distribution process, develop an opportunity to reduce waste, and maximize cost savings at a large integrated health-system.

Background: The definition of pharmaceutical waste includes any medicine or drug that may be expired, unused, or left over after medical treatment or surgical procedure. Illinois law states that any unopened, expired or excess medication that has been dispensed for a patient or resident in liquid or solid form is designated an unused medication and can be accepted for disposal. In Wisconsin, all pharmaceutical items (undefined) are accepted for disposal. Proper drug disposal is key in preventing environmental harm and avoiding misuse of unused medication. Reverse distribution is when medications are returned to a central company for destruction. Following evaluation of reverse distribution resources, this project aims to develop a process for optimization and implementation for all inpatient sites within Advocate Health- Midwest Region.

Methods: A retrospective review of medications returned to the reverse distributor from Advocate Health-Midwest Region hospitals from June 2022-June 2023 was conducted. Analysis included identification of the most returned products, weight of all products returned, and amount of medications that do not obtain credit when returned. Inclusion of Advocate Health- MW contract data was utilized to identify charge for each on-site visit. A comparison of returned items and average daily utilization across all 26 inpatient hospital sites provided potential inventory adjustments.

Results and Conclusion: Pending and will be presented at the 2024 Illinois Pharmacy Resident Conference

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation Processes Notifying Pharmacists for Patients Being Discharged on Anticoagulant Medications

Author: Ellen Carlson

Primary Preceptor: Libby Kuhr-Bailey

Institution: Advocate Lutheran General Hospital

Abstract:

Authors: Ellen Carlson, PharmD; Libby Kuhr-Bailey, PharmD, BCACP; Jennifer Dodda, PharmD, BCPS

Purpose: Discharge medication reconciliations are critical in ensuring that patients are being discharged on the correct medications to reduce adverse events and readmissions. Adverse drug events are a common and costly issue that are seen in healthcare systems nationwide, with many leading to emergency department visits or hospital admissions/readmissions. At Lutheran General Hospital, pharmacists do not routinely review discharge medication reconciliations. This project evaluates the effectiveness of a best practice alert for pharmacists to improve anticoagulant medication prescribing on discharge medication reconciliations.

Methods: A single-center, cohort study that evaluated adult patients admitted to a 33-bed cardiac telemetry floor at Advocate Lutheran General. A best practice alert was created and implemented on anticoagulant medications at discharge. Data was collected pre- and post-implementation of the best practice alert to evaluate the rate of prescribing appropriateness and 30-day readmission rate in those who were discharged on anticoagulants.

Results and Conclusions: Results will be presented at the Illinois Pharmacy Resident Conference in May 2024.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing Risk Factors for PICC-related Thrombosis in an Inpatient Headache Unit

Author: Elise Chang

Primary Preceptor: Josephine Varda

Institution: Ascension Saint Joseph - Chicago

Abstract:

Author: Elise Chang

Co-Author: Josephine Varda

Title: Assessing Risk Factors for PICC-related Thrombosis in an Inpatient Headache Unit

Purpose:

Our inpatient headache unit cares for patients with (a variety of different) intractable migraines. Patients on this unit have a high incidence of peripherally inserted central catheter (PICC)-related thrombosis. In general, thrombotic complication rates associated with central venous catheter (CVC) use is 14% to 18%. Previous studies identified risk factors such as smoking, advanced age, and history of a venous thromboembolism (VTE), may increase the risk of developing blood clots. There is a lack of data regarding interventions to be done to reduce the incidence of PICC-related thrombosis in this patient population. The aim of this study is to assess unit-specific risk factors for development of PICC-related thrombosis.

Methods:

This retrospective, single center, case-control study reviewed patients admitted to the inpatient headache unit from September 01, 2021 to September 01, 2023 who had a PICC placed. Patients were excluded from the study if they had a GFR <45 mL/min/1.73m2, or if they had other indications for therapeutic anticoagulation. Data collected included baseline demographic data, development of PICC-related thrombosis, and presence of previously published risk factors. The alpha level was set at 0.0038 after using the Bonferroni correction for multiple comparisons (i.e. 0.05/13).

Preliminary Results:

Data was collected for 100 patients; 68 patients who developed PICC-related thrombosis, and 32 patients who did not. Upon visual assessment, hormone use, obesity class III, and active smokers have a higher incidence of PICC related thrombosis.

Conclusion:

Future directions include developing interventions in the inpatient headache unit to decrease patients' risk of developing PICC-related thrombosis.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of the Effect of Insulin Dose Modification in Hyperkalemia Order Set on Incidence of Hypoglycemia in Patients with Renal Insufficiency

Author: Panjie Chen

Primary Preceptor: Katerina Bakhmut

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

Abstract:

Background: Hyperkalemia is a common electrolyte disorder in patients with renal impairment that requires timely treatment to prevent the development of potentially life-threatening arrhythmias and metabolic complications. Current guidelines and best practices suggest administration of intravenous (IV) regular insulin 10 units with dextrose to shift potassium intracellularly for acute hyperkalemia management. Hypoglycemia is a potential complication associated with IV insulin therapy, and the risk is elevated in patients with renal impairment. To lower the risk of hypoglycemia, a reduced dose of 5 units of IV insulin was proposed as an alternative to the standard 10 units. In December 2020, IV regular insulin 5 units was added to the hyperkalemia order set at Jesse Brown VA for patients with at least one risk factor for hypoglycemia to reduce hypoglycemia risk. The purpose of this study was to evaluate the impact of the hyperkalemia order set changes on the incidence of hypoglycemia.

Methods: This study was a retrospective, electronic chart review of Veterans with renal insufficiency, defined as eGFR less than 30 mL/min, who received IV regular insulin for hyperkalemia treatment from December 1, 2017 through November 30, 2019 (before the order set modification) or January 1, 2021 through December 31, 2022 (after the order set modification) in the emergency department or an inpatient unit. The primary endpoint was the incidence of hypoglycemia (blood glucose less than 70 mg/dL) within 8 hours after IV insulin administration. The key secondary endpoints were the incidence of severe hypoglycemia (blood glucose less than 40 mg/dL), time to first blood glucose recheck, and change in serum potassium after administration of IV insulin.

Results: Pending.

Conclusion: Pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Evolution and Heterogeneity of Pharmacogenomic Panels

Author: Jimmy Chen

Primary Preceptor: Dyson Wake

Institution: NorthShore University HealthSystem

Abstract:

At Endeavor Health, pharmacogenomics (PGx) is used to guide patients and clinicians in selecting efficacious and safe treatment. This testing is primarily performed by using multi-gene PGx panels. There is currently no established national standard for the precise content of these panels and differences are common in their coverage of genes and individual single nucleotide polymorphisms (SNPs). Additionally, these panels change over time due to the identification of new gene variants or updates in guidelines. The purpose of this project was to create an accessible and consistent source for the content of the PGx tests supported by the health system and to identify the impact of these differences on discovery of PGx interactions.

This project was a quality improvement initiative and did not require IRB approval. Data was requested from the variant repository management team regarding the six PGx panels that have been supported at this health system. The first phase was to determine the content of each panel over time and changes within tests. Requested information for this phase included the date the panel was assayed, accession number, and the tested gene variants. The contents of each panel were reviewed for changes over time to determine variant differences and panel iterations.

In the next phase, key genes reported to patients were first identified. The impact of differences among the PGx panels was assessed by comparing subgroups of patients who had not been tested for key genes. The electronic health records for these groups were queried for their exposure to potentially impacted medications. An estimate of the potential interactions that may have been found through additional testing was calculated by using genetic frequency information from national databases.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Development and implementation of an anticoagulant drug-drug interaction alert system (ADDIS): a pilot alert system for a pharmacist-managed anticoagulation clinic

Author: Alexis Coffee

Primary Preceptor: Asimina Pappas

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

Warfarin and direct-acting oral anticoagulants (DOACs) treat and prevent venous thromboembolism (VTE) and cerebrovascular accidents. Both warfarin and DOACs have potential drug-drug interactions that can lead to increased bleeding or increased risk of VTE. Currently, there is no automated alert system for interactions; therefore, patients at the pharmacist-managed anticoagulation clinics are encouraged to notify the clinic when a new medication is started. Often the interaction is identified during a clinic appointment after the interacting medication was initiated or completed. The implementation of an alert system has the potential to improve patient safety and reduce avoidable adverse events. The purpose of this project is to develop and implement an alert system to immediately notify anticoagulation clinic pharmacists when an interacting drug is prescribed, or if a dose of an interacting medication is changed for clinic patients. Alerts would provide the pharmacists with information to better manage patients' anticoagulation.

Methods:

An anonymous survey was sent to all anticoagulation clinic pharmacists to determine actionable drug-drug interactions for warfarin and DOACs. The survey was also used to determine the current ways that anticoagulation clinic pharmacists become aware of interacting medications being prescribed. Information technology resources will be used to implement the alert system for the three anticoagulation clinics within a health system. Alerts would be triggered at the time of outpatient prescribing for the anticoagulation clinic pharmacists to review. The pharmacists would then document any action they take in response to the alert. Once implemented, the following will be monitored: number of alerts triggered and the intervention made by the anticoagulation clinic pharmacist after viewing the interaction.

Results: Pending

Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Buprenorphine in Reducing Full Agonist Opioid Use in Veterans with Chronic Pain

Author: Madison Collins

Primary Preceptor: Kevin Bacigalupo

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

Abstract:

Purpose: Opioids are the mainstay of chronic pain therapy despite lacking long-term safety or efficacy data, and pain is one of the most common reasons adults in the United States seek medical care. Chronic opioid use greatly increases the risk of overdose, even at low doses. Although rates of opioid prescribing have declined since the release of the 2016 CDC Opioid Prescribing Guideline, there is still a need to investigate and utilize other medication options. Buprenorphine is a partial mu-opioid receptor agonist and potent analgesic with an improved safety profile and similar efficacy to full agonist opioids. The purpose of this research project is to describe the change in total morphine equivalents of full agonist opioids prescribed to patients at Edward Hines, Jr. VA Hospital with chronic pain before and after initiation of buprenorphine. Through this assessment, we will describe the impact of buprenorphine on full agonist opioid prescribing and may use the results to educate providers to further deprescribing of full agonist opioids.

Methods: Retrospective chart reviews will be completed for all patients who were prescribed buprenorphine transdermal patches or buprenorphine buccal film between May 1, 2022 and May 1, 2023. Included patients were 18 years and older and were receiving chronic opioid therapy prior to buprenorphine initiation (defined as >90 days). The total morphine equivalents will be recorded for each patient before and 90 days after buprenorphine initiation. Data will be analyzed using descriptive statistics and Chi-square tests. Factors that will be reviewed include: indication for opioid prescription, prescriber specialty, if the patient was enrolled in hospice, palliative care, or a spinal cord injury patient, if the patient discontinued buprenorphine including the reason for discontinuation, and documented side effects.

Results/Conclusions: Ongoing. To be presented at the Illinois Pharmacy Resident

Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Comparison of Factor Eight Inhibitor Bypassing Activity and Recombinant Coagulation Factor VIIa for Refractory Bleeding in Cardiothoracic Surgery Patients

Author: Zane Colon

Primary Preceptor: Zibin Zhang

Institution: Mount Sinai Hospital Medical Center

Abstract:

Refractory bleeding may occur post cardiothoracic surgery (CTS): increases in morbidity and mortality may result. Traditional treatment modalities include administration of blood products and reversal of antithrombotic agents with medications such as protamine or desmopressin. Concentrated clotting factors (CCFs), including recombinant coagulation factor VIIa (rfVIIa) or prothrombin complex concentrate (PCC), may be considered in refractory cases to control bleeding and potentially avoid reoperation. There is a paucity of data for use of factor eight inhibitor bypassing activity (FEIBA) in CTS patients. Secondary to the unavailability of PCC in late 2020, a FEIBA Guideline was approved by the site's Pharmacy and Therapeutics Committee in January 2021. Subsequently, use of FEIBA was standardized for this indication.

This is a retrospective evaluation of patient outcomes in CTS patients who received FEIBA or rfVIIa.

Patients ages 18 and over who underwent CTS (including coronary artery bypass grafting or valve replacement) from April 2012 to August 2023 and received at least one dose of FEIBA or rfVIIa for control of refractory bleeding were included. Patients under 18 years, those who were pregnant, or those who received CCFs for non-CTS indications were excluded.

An electronic health record (EHR) report was used to identify patients. Patient demographics, including substance use history, comorbidities, and surgical indication and type, are being collected. Outcomes include details of intraoperative and postoperative (up to 24 hours) administration of blood products, dose of FEIBA or rfVIIa, postoperative complications, chest tube output, in-hospital mortality, length-of-stay (LOS), and time to extubation and ICU downgrade. Data will be summarized using descriptive statistics. Categorical data will be analyzed with the chi squared test and continuous data will be analyzed with the student's t-test.

As this is research in progress, results are pending. This study was approved by the site's institutional review board.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pharmacists' perspectives towards a mental health outreach program implemented to promote health equity

Author: Vanessa Cortez

Primary Preceptor: Drew Halbur

Institution: University of Illinois at Chicago College of Pharmacy Walgreens

Abstract:

The objective of this study is to assess pharmacists' perspectives towards the implementation of a program aimed at reducing mental health inequities by conducting a 45-day follow-up call to patients starting therapy with an antidepressant, anxiolytic, or antipsychotic medication.

In the United States, it is estimated that more than 1 in 5 adults suffer from a mental illness. Mental health illnesses can be treated with medications; however, not everyone has access to the proper treatment they need. Understanding the barriers that exist can allow healthcare providers to aid in eliminating mental health disparities and offer feasible solutions to patients regarding accessing adequate resources they need to combat psychiatric disorders.

In 2022, the Chicago Health Equity Incubator Phase 2 program was launched. The program involved outreach calls made to patients who were newly prescribed an antidepressant, anxiolytic, or antipsychotic medication 45 days after the prescription was dispensed. Monthly feedback and discussion sessions were implemented for pharmacists to have the opportunity to give insights about the benefits and disadvantages of the program.

A qualitative thematic analysis of recorded sessions of a group of pharmacists was conducted by manually coding for common themes relating to pharmacists' perceived impact on improving health equity. A standard question set was used to guide conversation regarding pharmacists' perceptions about their experiences with the program. An analysis was performed to identify any patterns from the phone calls and themes were derived from the patterns found.

Common themes that were identified while manually coding the recorded sessions included pharmacists' perspectives on delivery services, patient receptiveness, workflow barriers in the

pharmacy, and the best times to reach patients. Findings from this study may help pharmacies initiate and expand services that increase health equity outcomes for patients who experience barriers when accessing and adhering to their medications.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimization of Pharmacist Response to Adult Medical Code Team Events

Author: Monica Czuma

Primary Preceptor: Amina George

Institution: Advocate Lutheran General Hospital

Abstract:

Title: Optimization of Pharmacist Response to Adult Medical Code Team Events

Authors: Monica Czuma, PharmD; Amina George, PharmD, BCCCP

Purpose: Pharmacists are integral members of the multidisciplinary code team. Anecdotally, pharmacist engagement in emergency code response helps decrease the rate of medication errors. Additionally, pharmacists provide drug information, alternative medication recommendations during drug shortages and can expedite procurement of additional medications that may be required for patient resuscitation. At Advocate Lutheran General Hospital (ALGH), pharmacists covering adult patient units are required to respond to adult medical code team events, equivalent to in-hospital cardiac arrest events. Currently, BLS and ACLS training is completed via an online learning platform, Resuscitation Quality Improvement Program (RQI). Prior to the implementation of RQI, medical code team training was provided through a two day, in-person course biennially. Although RQI provides quarterly training opportunities to review BLS and ACLS education, pharmacists have expressed that the education provided through this platform is not as robust as compared to the didactic and hands on, multidisciplinary skills training provided previously. In turn, some pharmacists do not feel as comfortable and prepared to attend medical codes. The purpose of this project is to evaluate and enhance the current ACLS education for pharmacists, in an effort to increase their competency level and comfort during medical codes.

Methods: A pre-survey using the RedCAP database was conducted to evaluate baseline pharmacists' attitudes towards the current medical code education that is provided. A didactic medical code related education resource was created in addition to pharmacist participation in simulation based, in-person training following the pre-survey. A post-survey will be created after the didactic component to evaluate attitudes and effectiveness of the updated education.

Results/Conclusions: Data analysis is in progress. Final results and conclusions will be presented at the Illinois Pharmacy Residency Conference in May 2024.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the Impact of Gentamicin Surgical Prophylaxis Workflow Updates on Operational and Clinical Outcomes

Author: Christopher David

Primary Preceptor: Gourang Patel

Institution: University of Chicago Medicine

Abstract:

Purpose: Preoperative antibiotic surgical prophylaxis is an essential practice to significantly reduce the occurrence of surgical wound infections. The University of Chicago Medicine has adopted a fixed, weight-based dosing protocol for preoperative gentamicin surgical prophylaxis to expedite the process. The purpose of this study was to compare operational and clinical outcomes following changes to preoperative gentamicin surgical prophylaxis weight-based dosing protocol.

Methods: This was a retrospective, single-center, quasi-experimental study evaluating simplified weight-based gentamicin dosing for preoperative surgical prophylaxis in adult surgical patients. The primary endpoint was to evaluate the incidence of Omnicell stock outs pre- and post-intervention. Key secondary operational endpoints included generation of batched and expired gentamicin doses, incidence of 7-day AKI, 30-day surgical site infection, and 90-day surgery-related readmission.

Results: The study included all batched gentamicin doses between February 1, 2022 to July 31, 2022 (pre-intervention) and February 1, 2023 to July 31, 2023 (post-intervention) totaling 4,911 gentamicin doses of which 389 gentamicin orders were reviewed for clinical outcomes. The primary endpoint was 73 vs 50 stockouts ($p = 0.76$) between the pre- and post-intervention groups, respectively. The average number of batched doses per month was 497 vs 322 doses ($p = 0.001$). The total number of expired doses was 465 vs 250 ($p = 0.01$), and the average number of expired gentamicin doses per month was 78 vs 52 doses ($p = 0.04$). The clinical secondary endpoint of 30-day surgical site infection was 6 vs 16 ($p = 0.044$).

Conclusion: The simplification of weight-based gentamicin dosing achieved a substantial reduction in batched and expired gentamicin doses. However, the incidence of Omnicell stockouts remained unchanged. Clinically, there was a small, but significant increase in surgical site infections. Future

assessments and/or interventions should prioritize decreased stock outs, leverage lean principles, evaluate postoperative implications, and review adherence with protocol recommendations.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Financial impact of automated chemotherapy dose rounding at an academic medical center

Author: Keeyan Davis

Primary Preceptor: Katherine Moser

Institution: University of Chicago Medicine

Abstract:

Purpose: To demonstrate the impact an automated electronic health record based chemotherapy dose rounding program can have on cost savings and decreasing drug waste.

Methods: Single-center retrospective chart review performed at the University of Chicago Medical Center Duchossois Center for Advanced Medicine (DCAM) Chemotherapy Infusion Pharmacy from July 5, 2023 to October 4, 2023. Administration data was collected utilizing a medication utilization report within Epic Hyperspace. Automated dose rounding was piloted with bevacizumab, bevacizumab-awwb, and paclitaxel (protein bound), set in accordance with our internal dose rounding policy of 10%. A cost analysis, utilizing average wholesale price of the smallest commercial vial, was conducted on administrations that were automatically dose rounded down thereby saving at least one full vial. The primary outcome is estimated cost savings due to automatic dose rounding down. The secondary outcome is drug waste prevented from rounding up to the nearest whole vial.

Results: Over the 3-month period there were 241 administrations of bevacizumab, bevacizumab-awwb, and paclitaxel (protein bound) in the DCAM Chemotherapy Infusion Pharmacy. Of these, 182 applied automated dose rounding. Bevacizumab-awwb accounted for 102 administrations, 55 of which were rounded down. Paclitaxel (protein-bound) accounted for 80 administrations, 34 of which were rounded down. Total cost savings due to automatic dose rounding down was $112,190.66. Bevacizumab-awwb waste prevented from rounding to the nearest whole vial was 820.25 mg, approximately 8 vials. Paclitaxel (protein-bound) waste prevented from rounding to the nearest whole vial was 255.70 mg, approximately 3 vials. Total savings from waste prevention was approximately $12,386.37.

Conclusions: Automated dose rounding has a significant impact on cost savings and drug waste prevention when applied to high-cost chemotherapy medications. There is also a benefit on pharmacist workflow efficiencies as it removes the manual rounding process. We are currently planning to extend automated dose rounding to additional chemotherapy medications.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of ketamine infusion as adjunctive therapy for acute pain management in the postoperative period

Author: Alexa Devereaux

Primary Preceptor: Tania Wygonowski

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Purpose: Managing pain in surgical patients is complex and challenging, oftentimes requiring multimodal pain strategies. Exploring new analgesia regimens for this patient population is essential in improving patient centered outcomes such as quality of life and functional recovery. Literature has shown that ketamine can be a safe and effective strategy for pain management, particularly in surgical patients, and it is now guideline recommended by the American Society of Regional Anesthesia and Pain Medicine, the American Academy of Pain Medicine, and the American Society of Anesthesiologists for this indication. In January of 2023, the anesthesiology group at Advocate Illinois Masonic Medical Center (AIMMC) implemented a process change in the management of postoperative pain to include ketamine infusions as an adjunct agent to the mainstay of postoperative pain control, most commonly being opioids. The purpose of this project is to evaluate the impact of using ketamine as an adjunct therapy for the management of post-operative pain.

Methods: This is a retrospective chart review comparing opioid usage in patients receiving conventional treatment to patients receiving ketamine. Patients over 18 will be included if they are in the intensive care unit (ICU) or stepdown unit after procedures like orthopedics, colorectal, cardiothoracic, or genitourinary. The data collection period for the conventional group will be between January and December of 2022, and for the ketamine group will be between January and December of 2023. The primary outcome is average MME 48 hours postoperatively. The secondary outcomes include reduction in pain scores from first postoperative pain score to 24 and 48 hours, intensive care unit (ICU) length of stay, and adverse effects of opioids or ketamine.

Results: Pending

Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Efficacy and safety of prothrombin complex concentrate for the reversal of direct factor Xa inhibitors prior to deceased donor kidney transplant

Author: Michelle Dierker

Primary Preceptor: Kaitlin Ferguson

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

Abstract:

There is growing evidence that apixaban use in patients with end stage renal disease (ESRD) may be associated with a lower risk of major bleeding as well as reductions in thromboembolic risk in those with a history of venous thromboembolism or atrial fibrillation when compared with warfarin. As a result, an increasing number of patients with ESRD present for kidney transplant on direct factor Xa (fXa) inhibitors and clinicians are tasked with peri-operative management. Living donor transplantation allows for holding of anticoagulation prior to the planned procedure date, whereas the spontaneity of deceased donor kidney availability leaves holding of direct fXa inhibitors an unviable option. In a survey of transplant centers across the United States, the majority of responders report using four factor-prothrombin complex concentrate (4F-PCC) when practicing routine reversal of direct fXa inhibitors prior to transplant, but there is no clinical data to guide therapy regarding direct fXa inhibitor reversal prior to deceased donor kidney transplant (DDKT). The purpose of this study is to describe the efficacy and safety outcomes associated with 4F-PCC reversal for patients receiving direct fXa inhibitor before DDKT. This is a retrospective, observational cohort study conducted at Edward Hines, Jr. VA Hospital from November 2020 to October 2023. The study will include patients who present for DDKT necessitating direct fXa inhibitor reversal with 4F-PCC. The primary safety evaluation is achievement of hemostasis, graded as “excellent, good, or poor” as determined by the lowest hemoglobin recorded within 24 hours post-operation and/or receipt of blood product transfusion(s). The primary safety outcome is rate of arterial and/or venous thrombosis. Descriptive statistics will be utilized to display results. Results and conclusions are pending the completion of this study.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Implementation of a Substance Use Disorder Clinical Pharmacy Practitioner at a Veterans Affairs Medical Center

Author: Angelica DiPrizio

Primary Preceptor: Laine Ferrill

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

Abstract:

Purpose: The purpose of this quality assessment project is to evaluate the impact of a Substance Use Disorder (SUD) Clinical Pharmacy Practitioner (CPP) within Addictions Treatment Program (ATP) at Jesse Brown Veterans Affairs Medical Center (JBVAMC) on change in alcohol and tobacco intake, medication adherence, treatment retention, and cost savings in efforts to support SUD CPP funding and expansion.

Methods: This project is a retrospective, electronic chart review of Veterans with an active diagnosis of SUD seen by the SUD CPP from January 1, 2023, to August 31, 2023 for a duration of at least 2 encounters. Patients who were engaged in care for less than 2 encounters will be excluded. Data will also be obtained utilizing VA National dashboards for PharmD Tool Utilization. The primary outcome will be percentage of change in tobacco and alcohol intake per documented patient report as average number of cigarettes and standard drinks consumed daily. Exploratory data will include quantity of interventions performed by SUD CPP by intervention type and disease state, medication adherence rate for patients measured by medication possession ratio, adherence to SUD CPP scheduled appointments per attendance rate, and cost analysis of SUD CPP impact by intervention type.

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

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

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Comparison of Time to Administration from Order Verification for Piperacillin/Tazobactam Before vs After It was Added to the Emergency Department Pyxis: A Single Center Retrospective Chart Review

Author: Madeline DiVittorio

Primary Preceptor: Zane Elfessi

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

Abstract:

Purpose: Patients with sepsis should receive antibiotics within one hour of diagnosis per guidelines. Studies have shown that early administration of antibiotics in this patient population has decreased in-hospital mortality. Once a patient has received a sepsis diagnosis, each hour in delay of antibiotic treatment is associated with increased risk of in-hospital mortality. Factors that can affect antibiotic administration time are patients being triaged to a lower priority, patients not presenting with obvious signs or symptoms of sepsis, and the location of antibiotic. Though Jesse Brown VA Medical Center (JBVAMC) has begun the process of decentralizing pharmacy operations, there remains a knowledge gap on the affect on patient care since the addition of piperacillin/tazobactam to our emergency department (ED) automated dispensing cabinet (ADE). To address this, a quality assessment of the effectiveness in decreasing time to administration from order verification by moving piperacillin/tazobactam 4.5 grams to the emergency department pyxis from the central pharmacy is in progress. This study will assess whether a team-based approach decreases time to administration of piperacillin/tazobactam in the ED compared to the standard within an urban veteran population.

Methods: This is a single center, retrospective chart review of veterans that received piperacillin/tazobactam 4.5 grams in the ED of JBVAMC from August 3,2022-July 31,2023. Patients are divided into two groups, depending on whether they received piperacillin/tazobactam before or after it was loaded into the ADE. The primary endpoint of this project will be to assess for reduction in time from verification to administration of

piperacillin/tazobactam before and after pilot was launched. Secondary endpoints of this project include comparing the difference in in-hospital mortality before and after pilot and the proportion of patients who received piperacillin/tazobactam within 60 minutes before and after the pilot.

Results: The results will be presented.

Conclusion: The conclusion will be presented.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of a Pharmacy Driven Culture Callback Program at a Community Hospital

Author: Kenneth Bryan Espiritu

Primary Preceptor: Eugene Bush

Institution: Vista Health System-Vista Medical Center East

Abstract:

Title: Implementation of a Pharmacy Driven Culture Callback Program at a Community Hospital

Purpose: The objective of this study is to characterize the impact of a pharmacy driven culture callback program following an emergency department visit.

Methods: This is an observational study of adult patients in a community hospital. The electronic medical record will identify patients who visited the emergency department and had a culture performed prior to discharge. Pharmacists will use the culture results to determine if the prescriber and patient should be contacted to change or suspend the antibiotic prescribed. Data collected will include: the number and percentage of cases of treatment-organism discordance, pharmacist intervention outcomes, and the difference between prescribed days and appropriate days of therapy. Prescribing trends will also be reviewed, and education will be given to providers based on results of this study.

Results: The total number of interventions documented was 105 (As of Feb 2024), with 20 cases where the culture result showed initial treatment organism discordance. For those patients, an ED pharmacist made new recommendations to the prescriber, and 19 patients were successfully contacted to be switched to an appropriate antibiotic. 1 patient was unable to be contacted. This has resulted in a total of 80 days of inappropriate antibiotic treatment avoided. The median time to antibiotic therapy adjustment occurred approximately 3 days following discharge.

Conclusions: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: An evaluation and assessment of rapid response team (RRT) and medications events

Author: Lara Fakhouri

Primary Preceptor: Jill Starykowicz

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Inpatient hospital rapid response team (RRT) notifications have been widely accepted as a reliable mechanism for identification and evaluation of patients experiencing clinical deterioration. Medication related adverse events including dosing errors, incorrect or inappropriate medication therapies and delays in medication treatment may contribute to RRT events. Pharmacists at Advocate Lutheran General Hospital (ALGH) do not respond to RRT notifications; however they are frequently involved if the event is medication related. Pharmacists play an important role in assessment of medication therapy including (1) admission medication reconciliation review (ADMR), (2) identifying omissions in therapy, (3) evaluation of medication side effects or reactions (4) and administration of antidotal therapies to name a few. With ALGHs current practice model, pharmacist to patient ratios have not been evaluated. The average patient to inpatient pharmacist ratio generally exceeds 75 in most inpatient areas which contributes to delays in pharmacists' ADMR and other sources of medication error, potentially contributing to medication related RRTs. The objective is to evaluate RRT notifications to determine an association of medication events/omissions or errors as a cause of the notification necessitating escalation to a higher level of care.

Methods: A retrospective chart review of adult rapid response notifications at ALGH was conducted in September 2022. RRT notifications were categorized into medication related versus non-medication related based on chart review. Additionally, medication-related events were further categorized as related to prior to admissions medications versus unrelated. The primary outcome measured was ADMR completed within 24 hours of admission. Secondary outcomes include administration of antidotal medications, adverse reactions, medication errors, mortality, and transfer to higher level of care. Baseline characteristics such as age, sex, reason for RRT notification, and hospital location of RRT notification were also collected.

Results and Conclusion: Results will be presented at the Illinois Pharmacy Resident Conference in May 2024.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Posaconazole Concentrations on the Risk of Invasive Fungal Infections Post-Lung Transplant

Author: Sarah Fierek

Primary Preceptor: Alyson Prom

Institution: Northwestern Memorial Hospital

Abstract:

Incidence of invasive fungal infections is 4-14% within one year post lung transplant and is the most common cause of mortality at one year. In accordance with clinical practice guidelines, lung transplant recipients at this center receive universal prophylaxis with posaconazole for 6 months utilizing therapeutic drug monitoring. Previous studies have shown high rates of subtherapeutic posaconazole when used for invasive fungal infection prophylaxis. The purpose of this study is to determine whether subtherapeutic posaconazole levels lead to an increased rate of invasive fungal infections in post lung transplant recipients.

This retrospective, single center cohort study included adult lung transplant recipients from 4/1/2018 through 12/31/2022 that received at least 30 days of posaconazole prophylaxis with data available through 6 months post-transplant. Patients were excluded if they received a retransplant, multi-organ transplant, had a fungal infection within 30 days prior to transplant, or if they received any other antifungal except nebulized amphotericin within the study period. Data was collected using retrospective chart review and analyzed with SPSS statistical software.

A total of 178 patients met inclusion criteria. Baseline characteristics were similar except a higher percentage of bilateral lung transplants in the therapeutic vs. the subtherapeutic cohort (88.0% vs 57.3%, $p<0.001$) and variation in transplant indication between each group ($p = 0.003$). The primary outcome of invasive fungal infection incidence occurred in 13.7% (21/153) of patients in the therapeutic posaconazole cohort compared to 16% (4/25) of patients in the subtherapeutic posaconazole cohort ($p=0.758$). Mortality at 1 year was 4.6% (7/153) in the therapeutic group vs. 12% (3/25) in the subtherapeutic group ($p=0.150$).

Subtherapeutic posaconazole levels did not appear to significantly increase the risk of invasive fungal infections or mortality in lung transplant recipients when compared to patients with therapeutic levels.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: How to Correctly Interpret QT Prolongation and Adjust Medication Therapies

Author: Allison Fortier

Primary Preceptor: Annette Elens

Institution: Ascension Saint Joseph - Joliet

Abstract:

Purpose: Prolonged QTc is a known risk factor for developing torsades de pointes (TdP). Accurate assessment of the QT interval decreases the risk of TdP and ensures guideline-recommended therapies are not discontinued. AHA/ACCF/HRS recommends that standardized electrocardiogram (ECG) acquisition and QT-measurement procedures be used to meet performance standards. The purpose of this study is to assess the impact of QTc prolongation education on clinical pharmacist interventions and confidence in making those interventions.

Methods: A retrospective chart review was conducted on patients who had a reported ECG and received at least one dose of a pre-selected QT prolonging agent from September 2023 to November 2023 to determine the frequency and quality of pharmacist interventions. Education was provided to pharmacists regarding the use of different calculations to determine an accurate QTc interval and the medications and disease states that impact QT prolongation. Data was collected between February 2024 and April 2024 to determine the impact of QTc education on the frequency and quality of pharmacist interventions. The secondary outcome was to assess the confidence of pharmacists with contacting providers about QT prolonging medications.

Results: An analysis of pre-education data showed that one pharmacist intervention was performed. Post-education data collection and analysis is pending. The average rate (based on a 1 to 10 scale) of confidence with evaluating risk of QT prolongation increased from pre-education to post-education (5.7 vs 8.1). The average rate (based on a 1 to 10 scale) of confidence with paging providers about prolonged QTc and QT prolonging medications also increased from pre-education to post-education (6.4 vs 8.7).

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Lipoprotein(a) testing: prevalence, patient characteristics, and impact on lipid-lowering therapy prescribing

Author: Hannah Frank

Primary Preceptor: Clara Ting

Institution: University of Chicago Medicine

Abstract:

Purpose

Lipoprotein(a), or Lp(a), is a low-density lipoprotein-like particle that is independently linked to an increased risk of cardiovascular disease. Current Lp(a) testing practices in real-world practice are unclear. The purpose of this study is to describe Lp(a) testing patterns and subsequent changes in lipid-lowering therapy (LLT) prescriptions in Lp(a)-tested patients compared to patients who only had a standard lipid panel checked at our institution.

Methods

This was a single-center retrospective study of patients at University of Chicago Medicine who received a Lp(a) or lipid panel test between January 1, 2020 to December 30, 2022. Patients were included if they were 18 years or older, had a valid Lp(a) or lipid panel test result, and had at least one encounter within our health system within the prior year. The primary outcome was new LLT prescriptions within 6 months of the lab test. Medications evaluated include statins, ezetimibe, and PCSK9 inhibitors, among others.

Results

957 Lp(a) tests were ordered during our study period. 783 patients in the Lp(a) group and 751 in the lipid panel group were included. Patients who had an Lp(a) test were more likely to have hypertension (61.8% vs. 53.0%; $p<0.001$), hyperlipidemia (61.7% vs. 32.6%; $p<0.001$), and coronary artery disease (22.9% vs. 11.3%; $p<0.001$). Lp(a) tests were more commonly ordered outpatient (96.9% vs. 85.0%; $p<0.001$). The most common medical specialties ordering Lp(a) tests were Cardiology (83.0%) and Internal Medicine (11.0%). LLT was initiated in more patients who were ordered a Lp(a) test (30.8% vs. 8.5%; $p<0.001$), most commonly statins (68.0%), ezetimibe (31.1%), and PCSK9 inhibitors (5.4%).

Conclusions

Patients who had an Lp(a) test ordered had more cardiovascular risk factors including hypertension, hyperlipidemia, and existing coronary artery disease. Compared to lipid panel testing only, Lp(a) testing was associated with more downstream initiation of lipid-lowering therapies.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Therapeutic Drug Monitoring of Crushed Posaconazole Tablets in Lung Transplantation

Author: Molly Gavin

Primary Preceptor: Krista Paplacyzk

Institution: Northwestern Memorial Hospital

Abstract:

Invasive fungal infections are among the most common opportunistic infections that occur in lung transplant recipients, with Aspergillus having the highest incidence. The 2015 International Society for Heart and Lung Transplantation (ISHLT) Guidelines for the management of fungal infections in cardiothoracic transplant recipients recommend that the decision of transplant centers to use universal prophylaxis or preemptive treatment should be determined by factors including access to therapeutic drug monitoring and either method may be suitable depending on the time post-transplant.

Northwestern Memorial Hospital practices universal prophylaxis in lung transplant recipients with posaconazole. For lung transplant recipients who require medication administration via tube post-transplant, adequate exposure to opportunistic infection prophylaxis medications must remain. The bioavailability of immediate release oral posaconazole suspension is unpredictable and has shown to result in subtherapeutic levels. Limited data exist demonstrating the ability to achieve therapeutic trough concentrations after crushing posaconazole tablets in these patients. Thus, the purpose of this study is to determine if crushing delayed-release posaconazole tablets results in serum posaconazole concentrations adequate for prophylaxis in lung transplant recipients.

This is a retrospective chart review of all lung transplant recipients ages 18 and older at Northwestern Memorial Hospital who received crushed posaconazole delayed-release tablets through either a nasogastric (NG), orogastric (OG), or gastrojejunostomy (GJ) tube from 01/01/2018 - 08/31/2023. Patients were excluded if they underwent a multi-organ transplant, received less than five days of posaconazole via tube administration, required extracorporeal membrane oxygenation (ECMO) for more than 24 hours post-transplant, or had a diagnosis of cystic fibrosis due to altered pharmacokinetics. Patients will be identified using ICD10 code Z94.2, and descriptive statistics will be used to analyze the resulting data.

The primary endpoint is the incidence of therapeutic posaconazole serum concentrations (defined as a trough > 0.7 mg/L for prophylaxis). Results are pending at this time.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Intensive Induction Chemotherapy with Mitoxantrone and High Dose Cytarabine in Acute Myeloid Leukemia

Author: Jerime Gendron

Primary Preceptor: Aaron Krapfl

Institution: Rush University Medical Center

Abstract:

Acute myeloid leukemia (AML) is a hematologic malignancy that is associated with a high mortality rate in the United States. Standard of care treatment options include intensive induction chemotherapy with a continuous infusion of cytarabine with an anthracycline, otherwise known as the 7+3 regimen. At Rush University Medical Center (RUMC), the standard of care for AML is a regimen using mitoxantrone and high dose cytarabine on days 1 and then day 5 of treatment (1+5). The 1+5 regimen has limited data regarding long term efficacy and adverse effects. The goal of this retrospective cohort study was to assess the efficacy and safety of the 1+5 regimen. All patients who received at least one dose of the 1+5 or 7+3 regimen for newly diagnosed AML at RUMC from January 2016 to September 2019 were eligible for this study. Data was collected for this study via retrospective chart review. The primary outcome was overall response to chemotherapy defined as complete remissions, incomplete remissions, and partial responses after initial therapy as defined by International Working Group criteria for AML. Key secondary outcomes included overall survival and relapse-free survival. Results for this project are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Shouldering the Load: Developing a Best Practice Library for Loading Automated Dispensing Cabinets in a Multi-Hospital Health System

Author: Ariel Gonzalez

Primary Preceptor: Deborah Bryniarski

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Evaluate and optimize the automated dispensing cabinet (ADC) loading and unloading processes across 25 hospital sites within Advocate Health's Midwest Region. The primary objective is to enhance efficiency and effectiveness in medication management within a multi-hospital health system.

Methods: A survey was developed to assess loading and unloading methods from 25 hospital sites across the health system. Questions were asked regarding space limitations, number of ADC replenishment batches, description of current processes, and the use of any reports to aid in those processes. Analysis of survey data informed the focus on the "Ordered Meds Not Loaded" (MNL) report for process improvements in the pharmacy technician ADC loading workflow for this project. Modification of the report involved removing medications that were deemed inappropriate to load, despite an active order. The modified pharmacy technician workflow involves (1) printing the MNL report three times daily, (2) loading a 5-day supply of medications based on the report, and (3) unloading medications not used in the previous 45 days two times per week. Prior to implementing the new workflow, optimization steps included removing inactive controlled substances from ADCs, designating medications deemed inappropriate to ever be unloaded as "standard stock", and adjusting ADC care areas.

Results and conclusion: Surveyed hospitals described a variety of loading methods including the use of automation generated load labels, having an automation specialist reviewing medication usage regularly, and using an MNL report. Further results are in progress but will be presented upon completion at the 2024 Illinois Pharmacy Resident Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Targeting Blood Pressure, a Pharmacy-Led Pilot Intervention to Improve Hypertension Control in a Community Health Center at a Teaching Hospital

Author: Maria Gonzalez Chavez

Primary Preceptor: Sonia Ibrahim

Institution: NorthShore University HealthSystem

Abstract:

Title: Targeting Blood Pressure, a Pharmacy-Led Pilot Intervention to Improve Hypertension Control in a Community Health Center at a Teaching Hospital

Primary authors: Maria Gonzalez Chavez, PharmD

Secondary authors: Sonia Ibrahim, PharmD, MPH, BCPS

Purpose:

The Community Health Center (CHC) is a medical resident-run clinic within a community teaching hospital that improves access to medical care across a spectrum of health services. The purpose of this project is to pilot a pharmacist-led intervention to achieve blood pressure goals among patients at the CHC. Uncontrolled hypertension is a known risk factor for heart disease and stroke. The primary objective is to provide grant-funded home blood pressure monitors and education to patients enrolled in the clinic. The secondary objective is to assess improvement in blood pressure through follow-up after initial intervention. Target blood pressure will be based on 2018 ACC/AHA Guidelines or as indicated by the patient's provider.

Methods:

The project will be conducted within the CHC with a target enrollment of 15 patients. Home blood pressure monitors will be distributed to uninsured patients enrolled in the clinic. The pilot will utilize pharmacists to provide patient education on lifestyle, diet, medications as well as best practices for home blood pressure monitoring. Patients will be instructed to keep logs at home and to share them with their provider. Pharmacists will complete a follow-up call within 7-10 days. Patient concerns and elevated readings will be communicated to the provider. A final three-month follow-up will be conducted to assess the percent of patients meeting blood pressure goals. The number of patients will be tracked throughout the pilot to assess sustainability of the project. Patient-specific information will be maintained securely and de-identified.

Results: pending

Implications: pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Current Practices in Managing Heart Failure (HF) Medication Optimization and Outcomes

Author: Miriam Haddad

Primary Preceptor: Jessica Carlson

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

Abstract:

Heart failure (HF) is a chronic condition in which the heart is structurally and/or functionally damaged resulting in impairment of its ability to pump or fill with blood. The risk of HF increases with age, as well as with cardiometabolic comorbidities such as hypertension, diabetes, and obesity. In the United States, it is estimated there are approximately 960,000 new cases of HF per year, with HF accounting for 8.5% of all cardiac deaths.

The purpose of this quality improvement project will be to describe and evaluate current HF medication management at the Jesse Brown VA Medical Center (JBVAMC) with a focus on Guideline-Directed Medical Therapy (GDMT) optimization and clinical outcomes. The National HF Patient Report will be utilized to identify Jesse Brown patients with a heart failure diagnosis. A total of 135 patients will be reviewed from the following groups: patients with a Clinical Pharmacy Practitioners (CPP) HF encounter, patients with a non-HF CPP encounter, and patients without a CPP encounter. Patients must have at least one encounter with their PCP, CPP, or Cardiologist within the study period. Patients with HF with preserved ejection fraction will be excluded. Further areas of interest to be reviewed in the subgroup analysis include CPP visits, cardiology consults/follow up, race, and rurality.

The primary outcome of this descriptive analysis will be the number of GDMT medications at the end of the study period. Other outcomes to be evaluated include the number of GDMT medications at target doses and the number of HF admissions within one year. The anticipated findings will provide support for additional clinical pharmacist allocation in the identified area of need to ultimately improve patient care and safety for HF patients at Jesse Brown VA Medical Center.

Results and conclusion are in progress and will be included in the final presentation.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of a Pharmacist Directed Treat to Target Approach in Patients with Inflammatory Bowel Disease Receiving Upadacitinib or Risankizumab

Author: Justin Han

Primary Preceptor: David Choi

Institution: University of Chicago Medicine

Abstract:

Purpose: A strategy to enhance remission rates in Inflammatory bowel disease (IBD) which encompasses Crohn's disease (CD) and ulcerative colitis (UC) is the treat-to-target approach, as established by the Selecting Therapeutic Targets in IBD (STRIDE) II study. While this approach offers a structured algorithm for therapeutic interventions, its implementation faces challenges, including limited resources and healthcare personnel. The purpose of this study is to elucidate the role of clinical pharmacists in the treat-to-target paradigm of IBD, and to assess the impact a clinical pharmacist can provide to and IBD care team.

Methods: Patients > 18 years of age, diagnosed with IBD, who initiated upadacitinib or risankizumab-rzaa were eligible to be included the study. Upon therapy initiation, clinical pharmacists conducted follow-up monitoring calls to assess for successful therapy starts, adherence to therapy, use of steroids, adverse effects, clinical disease activity, need for clinic visit and need for lab monitoring at 2, 4, 8, 12 weeks, and 6 months after therapy initiation. Data collection was conducted via retrospective chart review.

Results: From March 31st 2021 to July 7th 2023, 227 patients initiated upadacitinib and from June 20th 2022 to October 18th 2023, 210 patients initiated risankizumab-rzaa treatment. Initial education was completed by a pharmacist for all patients. The most common intervention across both groups was assessment and recommendation of continuation of therapy which was made 1747 times (49.7% of all interventions). The second most common pharmacist intervention was recommendation of lab monitoring which occurred 1374 times (39%). The success rate of patient outreach by pharmacists was 83.4% in the upadacitinib group and 84.5% in the risankizumab-rzaa group.

Conclusion: The involvement of pharmacists in the treat-to-target approach for IBD management demonstrated consistent engagement and interventions. This pharmacist directed treat to target approach shows promise in optimizing patient care, adherence, and therapy outcomes.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pharmacokinetic evaluation of a de novo tacrolimus extended-release dosing strategy in Hispanic and Latino kidney transplant recipients

Author: Catherine Hayes

Primary Preceptor: Rishi Arora

Institution: Northwestern Memorial Hospital

Abstract:

Authors: Catherine Hayes, PharmD; Rishi Arora, PharmD; Clare Kane, PharmD, BCTXP, BCPS; Anna Rubino, PharmD; Vinayak Rohan, MD

Purpose: This study aims to evaluate achievement of therapeutic tacrolimus levels using an institution-specific initial dosing strategy of tacrolimus extended-release tablets (TER) dosed at 0.08 mg/kg/day following kidney transplantation in Hispanic and Latino patients.

Methods: This is a single-center retrospective chart review of Hispanic and Latino kidney transplant recipients over three years who received TER following kidney transplantation. Patients were excluded if they were African American, used a non-TER regimen within 30 days following kidney transplantation, or were recipients of multi-organ or dual kidney transplants. The primary outcome was mean weight-based dose of TER (mg/kg/day) at first therapeutic tacrolimus level. Therapeutic goal within 3 months is 8 – 10 ng/mL. Therefore, levels within 7 – 11 ng/mL were considered within goal based on clinical significance. Secondary outcomes included mean tacrolimus level at post-operative day (POD) 2 and the percentage of patients with at least one therapeutic level documented by POD7.

Results: A total of 168 patients were included. All patients were initiated with 0.08 mg/kg/day TER on POD0. The mean weight-based dose of TER at the first therapeutic level was 0.088 mg/kg/day (SD ± 0.034 mg/kg/day). At POD2, the mean tacrolimus level was 7.4 (SD ± 3.8 mg/kg/day), with 5% of tacrolimus levels being undetectable, 52% subtherapeutic, and 19% supratherapeutic. By POD7, 68% of patients had at least one level within therapeutic range.

Conclusions: The FDA-approved dosing for TER is 0.14 mg/kg/day, which in one phase 2 study resulted in supratherapeutic levels in 11% of recipients after a single dose. This dosing scheme results in a lower

incidence of supratherapeutic tacrolimus levels, while still achieving therapeutic tacrolimus levels by POD7. As such, using an initial dosing scheme of 0.08 mg/kg/day may provide a plausible balance between achieving therapeutic concentrations while minimizing adverse effects from high trough concentrations.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of a Pharmacist-Managed Quality Improvement Initiative on the Cost Savings Associated with Dose Rounding Oncology Medications

Author: Athina Herrera Ng

Primary Preceptor: Alexis Kasniunas

Institution: RUSH Copley Medical Center

Abstract:

Purpose:

The purpose of this study is to analyze the impact of cost savings with a pharmacist-managed dose rounding protocol and the cost savings associated with dose rounding of oncology medications.

Methods:

This study is a retrospective review of patients on oncology medications at Rush Copley Medical Center in which dose rounding is done per hospital protocol between April 1, 2023 and June 30, 2023. In this protocol, pharmacists are able to manually round chemotherapy doses to the nearest vial size within 10% change during the first verification process. This rounded dose is based on the current weight, or body surface area, of the patient and this must be documented in the administration comments of the order. Oncology medication verification process requires an independent double check by a second pharmacist who will use the most recent recorded weight or body surface area for all calculations at the time.

The primary outcome of cost savings in dollars will be reported to the nearest hundredth decimal point and will be analyzed using continuous data. Cost saving will be calculated by cost per vial based on institutional acquisition cost, the cost of the calculated dose prior to rounding to nearest vial size in dollars, cost of rounded dose to nearest vial size in dollars and the difference between cost of calculated dose and rounded dose in dollars. The secondary outcome will be reported as adherence to the protocol and will be analyzed using descriptive statistics.

Results:

Results are pending and will be presented at the Illinois Pharmacy Research Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Effectiveness of oral, dose-optimized beta-lactams compared to standard of care agents in the treatment of Gram-negative pyelonephritis or bacteremia due to urinary sources

Author: Tyler Howse

Primary Preceptor: William Moore

Institution: Northwestern Memorial Hospital

Abstract:

Purpose: Increasing evidence suggests dose-optimized, oral beta-lactam (BL) antibiotics may offer similar clinical outcomes and improved safety compared to standard of care (SOC) agents, such as fluoroquinolones (FQ) and trimethoprim-sulfamethoxazole (TMP-SMX), when utilized as stepdown therapy for severe infections including pyelonephritis complicated by bacteremia. The purpose of our study is to evaluate treatment failure rates of dose-optimized, oral beta-lactams compared to SOC agents for the treatment of pyelonephritis or bacteremia originating from a urinary source.

Methods: This is a single center, retrospective, cohort study of hospitalized patients with pyelonephritis or bacteremia due to a urinary source treated with stepdown oral antibiotics from April 2018 to August 2023. The primary endpoint is clinical failure, defined as a composite of all-cause mortality, re-admission for urinary complaint, or documented receipt of a different antibiotic for index infection within 30 days. Patients will be included who received >72 hours of aforementioned oral antibiotics. Exclusion criteria includes patients who received <72 hours of oral antibiotics, were treated beyond 14 days of therapy, expired within 72 hours of oral therapy initiation, or those with pathogens resistant to oral therapy. Secondary outcomes include rate of recurrent positive urine or blood cultures within 30 days, duration of antibiotic treatment, length of hospitalization, development of drug resistance within 90 days, and reported adverse events. Descriptive statistics will be used to analysis and present data.

Results: Results to be shared once analysis complete

Conclusion: Conclusions pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Development of a Pharmacy Sustainability Committee

Author: Gregory Hurula

Primary Preceptor: Cheryl Scantlen

Institution: Advocate Good Samaritan Hospital

Abstract:

Hospitals and labs are responsible for 4.4% of the world's greenhouse gas emissions and 5 million tons of waste each year. The United States health system produces ~14,000 tons of waste each day, of which 20-25% is plastic. The pharmaceutical industry alone produces 55% more CO2 emissions than the automotive industry. The purpose of this project was twofold: 1) Identify unsustainable practices at Advocate Good Samaritan and develop a plan to address those practices 2) Implement an Advocate Health – Midwest system pharmacy-based sustainability committee. The pharmacy staff at Good Samaritan was surveyed to come up with a list of unsustainable practices. Of that list, three were identified as quantifiable: 1) Premade intravenous (IV) medication batching waste 2) Energy usage of IV preparation room hoods 3) Excess packaging received from shipments. Expired IV batched products were collected, counted, and logged. The expired products will be compared to the amount produced during collection to determine the next steps in waste reduction. Packages containing excess packaging were collected and noted. That data is to be used to work with the Advocate Health system sustainability director for further review and planning with the system Pharmacy Supply Chain team. A method for measuring the energy usage of the pharmacy IV laminar flow hoods is in development with our Good Samaritan facilities department. In creating a system pharmacy-based sustainability committee, a meeting was held with the system level sustainability director to determine how a pharmacy sustainability committee could fit within that structure. From that meeting, a sustainability survey was created for pharmacy leadership at each hospital within the Midwest region of Advocate Health to complete. The results of that survey will be compiled and used to help develop the pharmacy structure for the system sustainability committee.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Cangrelor Dose and Titrations after Neuroendovascular Procedures

Author: John Huston

Primary Preceptor: Veronica Bonderski

Institution: University of Chicago Medicine

Abstract:

Purpose – The variable onset and offset of antiplatelet agents, such as oral P2Y12 inhibitors and glycoprotein IIb/IIIa inhibitors, potentially expose patients to an increased risk of hemorrhagic or thrombotic complications. Cangrelor is an intravenous P2Y12 inhibitor that achieves platelet inhibition within two minutes and has an offset time of within one hour from discontinuation. However, an ideal antiplatelet regimen has yet to be established. At the University of Chicago Medicine (UCM), cangrelor is administered as a 15mcg/kg bolus during the neuroendovascular procedure, followed by an infusion starting at 2 mcg/kg/min. Infusions are then titrated at physician discretion to a PRU goal of 50-150. The use of PRU values to dictate cangrelor dose titrations is controversial as there is a dearth of data on whether a predictable dose-response relationship exists between PRU values and cangrelor dose titrations. The purpose of this study is to determine if titrating cangrelor to PRU values can have an impact on improved clinical outcomes or prevention of adverse events.

Methods – A retrospective chart review was performed on patients receiving cangrelor following neuroendovascular intervention at UCM between June 20th, 2022 and August 4th, 2023. Dosing information collected included: bolus amount, initial infusion rate, rate changes, PRU assay values, and timing of all dose initiations and changes to assess adherence or deviation from standard cangrelor procedure at UCM. Study endpoints include the average dose of cangrelor to achieve 2 therapeutic PRU assays, the average number of dose titrations to attain a PRU value within 50-150, and the percentage change in PRU value with each titration. Safety outcomes include the incidence of major or minor bleeding while receiving cangrelor and the incidence of new ischemic stroke or intracranial device thrombosis while receiving cangrelor. STATA will be utilized to perform all statistical analysis.

Results/Conclusion –Pending, research in progress

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of Standardized IV to PO Pharmacist Managed Protocol across a Community Health System

Author: Yae Lin Hwang

Primary Preceptor: Amber Meigs

Institution: NorthShore University HealthSystem

Abstract:

The transition from intravenous (IV) to oral (PO) medication administration is crucial to inpatient care, impacting patient outcomes, reducing workload, and lowering costs. Clinically, appropriate transitions optimize therapeutic results, reflecting the evolving medical needs of patients. This change ensures treatment continuity and improves health outcomes. Financially, transitioning to oral medications proves cost-effectiveness. It also shortens hospital stays without compromising treatment efficacy, and this patient-centered approach aligns with a positive healthcare experience. Currently, individual hospitals within the same health system use different protocols and employ different pharmacist practices related to IV to PO transition. This project will aim to standardize and implement IV to PO protocols across multiple hospital sites within the health system. This project is exempt from Institutional Review Board approval as it is a quality improvement project. The primary objective is to standardize pharmacist managed IV to PO protocol across the 6 hospitals within the health system. An interdisciplinary team, comprised of clinical pharmacists, hospitalists and infectious disease physicians from multiple sites within the health system, was established to collaboratively examine the content of existing IV to PO protocols from each site and create a comprehensive and standardized pharmacist managed IV to PO protocol. Once the protocol has been standardized, it will undergo Pharmacy and Therapeutics Committee review for approval at all sites. Additionally, the electronic health record (EHR) will be updated to facilitate and integrate pharmacist workflow and documentation related to the changes.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Bridging the Gap: How Pharmacy Services Can Reduce Health Care Disparities

Author: Enas Iedani

Primary Preceptor: Meaghan McMurray

Institution: Advocate Sherman Hospital

Abstract:

Healthcare disparities refer to the variations in health outcomes that specific groups encounter based on multiple characteristics, including but not limited to race, ethnicity, gender, education, disability, location, and more. Healthcare disparities continue to be a significant issue in our society, with certain populations facing barriers to accessing quality care. One area that has the potential to address these disparities is pharmacy services. Pharmacists play a crucial role in patient care, and by identifying areas of opportunity, they can make a significant impact on reducing healthcare disparities.

Pharmacoequity is the equity to access the highest quality of pharmacotherapy required to manage a patient's health condition. In other words, it is the equity to access the most appropriate, evidence-based medication indicated to improve their health, regardless of race, class, or availability of resources. To reduce health disparities, pharmacoequity must be achieved as a top goal in public health and policy. To attain this objective, a distinct and innovative analysis of the factors that influence unequal drug access in social policy, research, patients, prescribers, and health policy is necessary. The objective of this study is to identify areas of opportunity for pharmacy services to impact healthcare disparities.

The primary approach utilized to finish this project is reviewing the literature and laying the groundwork for defining the determinant and barriers to achieving health equity. At the end of this project, a list of pharmacy interventions that impact healthcare equity will be identified and compared to Advocate Health pharmacy services. Thus far, the literature on pharmacoequity has emphasized the importance of ensuring equitable access to guideline-concordant therapies and lower cost equivalent medications when available.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pharmacogenomic Testing in a Veterans Affairs Facility: Identifying Barriers in Clinical Practice

Author: Cassandra Isaacs

Primary Preceptor: Annette Kossifologos

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

Abstract:

Pharmacogenomic Testing in a Veterans Affairs Facility: Identifying Barriers in Clinical Practice

Presenter: Cassandra Isaacs, PharmD, PGY-1 Pharmacy Resident

Preceptors: Annette Kossifologos, PharmD, BCPS; Priyatma Wirth, PharmD, BCGP; Sherry Hoang, PharmD, BCPS

Introduction:

Pharmacogenomic (PGx) Testing for Veterans (PHASER) is a free PGx testing program introduced to VA facilities in 2019. PHASER was implemented at the Edward Hines, Jr. VA Hospital in February 2023 and will remain fully funded by a grant through 2024. PGx provider education has been ongoing via in-services. However, the use of the PHASER program and PGx testing at this institution is limited.

Purpose:

This study aims to identify the barriers preventing ordering of pharmacogenomic testing in a Veterans Affairs medical center.

Methods:

A 15-item anonymous survey conducted via Microsoft Forms will be sent electronically to clinicians at the Edward Hines, Jr. VA Medical Center. Survey questions have been adapted and modified from previously published pharmacogenomic testing provider surveys conducted at non-VA institutions. The majority of survey items are measured on a 5-point Likert scale. Survey questions are divided into the following categories: respondent demographic and practice setting information, perceived benefit of

pharmacogenomic testing, confidence surrounding pharmacogenomics, barriers to ordering pharmacogenomic testing, preferences and perceived responsibilities surrounding pharmacogenomic testing, and experiences with PHASER/PGx. The primary outcome of the study is to identify which barriers to PGx testing are most frequently reported by providers. Secondary outcomes include rationale for ordering PGx testing (pre-emptive, reactive, or diagnostic testing) and tools identified to aid providers in implementation of PGx testing in their practice areas. Input gathered will be reviewed and utilized by pharmacogenomics clinical pharmacist practitioners for PHASER program and education improvement.

Results:

Pending

Conclusion:

Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Development of a Resource to Optimize Medication Administration Timing in Hemodialysis Patients

Author: Kalyn Jarrett

Primary Preceptor: Noreen Kelly

Institution: Advocate Lutheran General Hospital

Abstract:

Purpose: Develop an easily accessible medication resource for nursing and clinical staff to access when caring for patients on hemodialysis to ensure patients receive the right doses at the right time.

Methods: This study began by reaching out to nursing staff in the dialysis center at Advocate Lutheran General to compile a list of medications that necessitate frequent inquiries. A list of common medications used by hemodialysis patients was created utilizing the Advocate Aurora Health (AAH) formulary list to ensure that only medications on formulary were included. The resource was then developed using Excel and includes generic name, brand name, drug class, usual maintenance dose range, hemodialysis dosing recommendations, if the medication should be retimed to post-hemodialysis, and if the medication is dialyzed. The information on this resource was obtained by utilizing the current AAH Dose Adjustment Guidelines, Lexicomp, and Renal Pharmacology – Dose Adjustment of Medications Eliminated by the Kidneys, to ensure recommendations were in line with the most up to date literature. After the resource was completed, the hemodialysis recommendations were compared with electronic medical record orders and AAH Dose Adjustment Guidelines to assess for discrepancies, using Lexicomp as the primary reference. These findings were then presented to a decision-making body of Advocate Health. Recommendations were made to consider including relevant hemodialysis administration instruction within the electronic medical record orders, with a hyperlink to this medication resource as a reference.

Results: 334 medications commonly used in hemodialysis were first included; after reviewing AAH formulary, 269 medications were included in the resource. Out of the 269 medications included, 82 electronic medical record discrepancies were identified, and 28 inconsistencies were identified in AAH Dose Adjustment Guidelines when compared with updated hemodialysis recommendations.

Conclusion: In-process, findings and results will be presented at the 2024 Illinois Pharmacy Resident Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Effects of Pharmacy-Driven MRSA Nasal PCR Swab Protocol Reeducation on Length of Anti-MRSA Antibiotic Use Among Hospitalized Patients with

Author: Zaid Jasany

Primary Preceptor: Michael Dickens

Institution: Northwestern Medicine Central DuPage Hospital

Abstract:

Background and Purpose: Central DuPage Hospital (CDH) has a pharmacy and therapeutic committee approved protocol to allow pharmacists to order a Methicillin Resistant Staphylococcus Aureus (MRSA) nasal PCR swab when anti-MRSA antibiotics are ordered for the purpose of treating pneumonia (community, hospital, or ventilator-acquired). The intention of ordering the MRSA nasal PCR swab is to deescalate anti-MRSA antibiotics due to the high negative predictive value (95-99%) as seen in literature. However, many pharmacists were unaware of this protocol and defer ordering of the test to non-pharmacy staff. We expect education of the pharmacy department on a local protocol, already in place, will lead to reductions in the length of anti-MRSA antibiotic use.

Methods: This is a pre-post quality improvement study at Northwestern Medicine Central DuPage Hospital conducted over two phases. A pre-intervention (December 30, 2022 to February 14, 2023) and post-intervention arm (December 30, 2023 to February 14, 2024) will be utilized to assess the impact of reeducation [intervention] of pharmacy staff on the use of the protocol. Reeducation was completed December 29, 2023 via in-person and email communication. Patients will be identified via EPIC SlicerDicer based on presence of orders placed for anti-MRSA antibiotics along with manual chart review. The primary outcome of this study is length of anti-MRSA antibiotic use in patients with pneumonia (community, hospital, or ventilator-acquired). The secondary outcome is acceptance rate of pharmacists' recommendations based on the MRSA PCR nasal swab results, documented by the ordering pharmacist in an i-Vent.

Results/conclusion: Results and conclusion are pending final data collection.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Frequency of adverse drug events with milrinone utilization in critically ill patients requiring continuous renal replacement therapy

Author: Sydney Judge

Primary Preceptor: Kendall Mores

Institution: Northwestern Memorial Hospital

Abstract:

Milrinone, an inotropic medication, has therapeutic utilization in shock resulting from low cardiac output states. Milrinone is predominantly renally cleared unchanged in the urine and its elimination half life is significantly prolonged in patients with compromised renal function. There is an unclear understanding of how continuous renal replacement therapy (CRRT) might alter the clearance of milrinone in this patient population but the paucity of data available suggests a relatively low sieving coefficient resulting in accumulation and potential for toxicity. The aim of this study is to characterize adverse drug events in patients who receive a continuous infusion of milrinone while undergoing CRRT.

A retrospective descriptive study of critically ill adults, who received concomitant continuous intravenous weight-based infusion of milrinone and CRRT, was conducted from August 2018 to November 2023. Patients were included if they received the therapies concomitantly for ≥6 hours during a single, index, encounter. Patients excluded were actively enrolled in a clinical trial during the index encounter or concomitant use of another phosphodiesterase inhibitor or riociguat was identified.

The primary endpoint is the incidence of any new arrhythmia. Secondary endpoints include the incidence of atrial and ventricular arrhythmias, total arrhythmia occurrence per patient, inotrope and vasopressor use, ICU length of stay, and in-hospital mortality.

Results of the study are pending at this time.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the Appropriateness of Heparin-Induced Thrombocytopenia (HIT) Antibody Testing

Author: Anthony Karlovich

Primary Preceptor: Bryan Menich

Institution: Rush University Medical Center

Abstract:

Title: Evaluating the Appropriateness of Heparin-Induced Thrombocytopenia (HIT) Antibody Testing

Authors: Anthony Karlovich, PharmD; Bryan Menich, PharmD, BCCCP

Purpose:

Heparin-induced thrombocytopenia (HIT) is an immune-mediated reaction that occurs in 1-5% of patients exposed to unfractionated heparin. Accurate workup and diagnosis of HIT is important in order to avoid and treat limb and/or life-threatening thrombosis, as well as to prevent unnecessary and costly lab tests, alternative anticoagulants, and delays in procedures or hospital discharge. The purpose of this study is to evaluate the pharmacist managed diagnosis of HIT protocol at Rush University Medical Center (RUMC) for its impact on improving rates of appropriate testing and resource utilization.

Methods:

This was an IRB-approved, single-center, pre-post observational, retrospective, cohort-study and collected data was a result of routine care. Patients 18 years or older who had a “Pharmacy to discontinue all heparin products while HIT Ab is in process” (pre-intervention group) or “HIT Management Pharmacy to Dose” (post-intervention group) ordered between 01/01/2018 through 09/30/2023 were assessed for inclusion. Pregnant patients, those with a previous diagnosis of HIT, or those currently on mechanical circulatory support at the time of HIT workup were excluded. The primary outcome was to determine the appropriateness of the HIT antibody order. Secondary outcomes included the percentage of positive HIT antibody tests in appropriate and inappropriate tested groups, percentage of SRA confirmed HIT cases in appropriate and inappropriate tested groups, number of

occurrences HIT antibody test ordered against pharmacist's recommendation, number of patients initiated on direct thrombin inhibitors, number of patient days on direct thrombin inhibitors, cost of testing accrued in each group, and cost of alternative therapy course in each group.

Results:

Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimal Midodrine Dosing in Critically Ill Patients Requiring Intravenous Vasopressors

Author: Shahd Kattom

Primary Preceptor: Kajal Patel

Institution: Northwestern Medicine Central DuPage Hospital

Abstract:

: One of the most common reasons for intensive care unit (ICU) admission is shock, usually due to sepsis. The mainstay treatment for shock is vasopressor therapy to establish hemodynamic stability in critically ill patients. Vasopressors, however, come with their own risk factors including tachyarrhythmias, tachycardia, pulmonary edema and organ ischemia. Decreasing the duration of a patient needing vasopressors can improve patient outcomes, shorten time spent in the ICU, and reduce health system costs. Midodrine, an alpha 1 agonist, can be used as an adjunct to vasopressors by producing an increase in vascular control and blood pressure. Previous studies have compared patients in the ICU who received vasopressors alone to those who received vasopressors in addition to midodrine. Overall outcomes of these studies suggest that midodrine can reduce length of stay for patients in the ICU and reduce the duration in which they are on vasopressor therapy. The goal of this study is to identify midodrine dosing practices at Central Dupage Hospital and assess optimal dosing of midodrine in the critically ill. Methods: This is a single-center, retrospective chart review study that looks into patients admitted to the Intensive Care Unit at Northwestern Medicine Central Dupage Hospital initiated on vasopressors and midodrine between September of 2018 and November 2023. The primary endpoint is maximum midodrine dose administered in each patient. Secondary endpoints include midodrine dose initiated in the ICU and the time to be weaned off vasopressor therapy. Inclusion criteria are adult non-pregnant patients initiated on midodrine after being admitted to the ICU and on vasopressors including epinephrine, phenylephrine, norepinephrine, and dopamine.

Excluded patients are those who were taking midodrine prior to admission and those on dialysis, intermittent dialysis or have a history of being on dialysis. Data will be collected retrospectively from September 1st, 2018 to November 30th
, 2023, utilizing an electronic health record reporting
tool and through manual chart review. The following datasets will be analyzed: Days in the ICU, initial dose of midodrine, max dose of midodrine, continuation of midodrine upon ICU discharge, baseline vasopressor therapy, time to be weaned off vasopressors, duration of midodrine therapy, number of days on each dose of midodrine, and indication for vasopressors.
Results: Results and conclusions are forthcoming after data collection and analysis have been completed

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Comparison and Evaluation of MAR Administration Instructions & Smart Pump Alerts

Author: Sarah Khaddage

Primary Preceptor: Kelsea Caruso

Institution: Northwestern Memorial Hospital

Abstract:

Purpose: In 1999, the Institute of Medicine reported preventable medical errors as a leading cause of death, adverse events and increased healthcare costs. Root cause analyses identified system-wide failures, which caused a paradigm shift in our understanding of medical error. Technological advances were introduced with the intention of minimizing errors, such as computerized provider order entry, robotic drug dispensers, and Electronic Health Records (EHR). A core component of the EHR is the medication administration record (MAR), which helps ensure correct matching of the drug to its intended patient. Infusion pump technology-- smart pumps--are programmed with dose error reduction software (DERS) to ensure adherence to instructions in the drug library. The drug library encompasses drug administration information, such as concentration requirements, infusion rate limits, or whether specific tubing or filters need to be used. In addition to monitoring rates and volumes, smart pumps are capable of emitting alerts when an error is detected, and can prevent the infusion from starting in certain cases. The smart pump's drug library entry are generally single medications that can be tied to multiple ERX (medication record numbers). Discrepancies between MAR administration instructions on Epic and clinical advisories on smart pumps may lead to errors affecting patient safety. Furthermore, it is time-consuming for nursing staff who often manage multiple patients simultaneously. Harmonizing these alerts is key to reducing preventable errors and improving quality patient care outcomes. The purpose of this project was to confirm coherence between the clinical advisories programmed into the smart pump drug library and administration instructions featured in the Epic MAR.

Methods: Drug administration instructions were confirmed on drug monographs and primary literature. This information was compared with Northwestern Medicine's smart pump clinical advisories list and ERX instructions on Epic to ensure current best practices are accurately reflected.

Results: Results are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Creating a Sustainable Residency Program Professional Development Series

Author: Meagen Khoshaba

Primary Preceptor: Jennifer Locker

Institution: Advocate Lutheran General Hospital

Abstract:

Authors: Meagen Khoshaba, PharmD; Jennifer Locker, PharmD, BCPS

Purpose: The purpose of this project is to create and implement formalized professional development opportunities for PGY1 residents across AdvocateHealth (AH) Midwest region.

Methods: Several elements of a professional development program were created to incorporate in the AH-Midwest residency pharmacy programs. First, technology has been leveraged to build an internal social platform for over sixty residents across the AH-Midwest region to connect and build relationships. Another component of this project is the development of a mentorship program. A survey was sent to residency program directors (RPDs) to gauge support for a mentorship program, a focus group was convened to further develop the concept, and the concept was presented to stakeholders. Further development of the mentorship program is ongoing. Another intervention of this project is to create formalized leadership roles for residents. Formalized leadership positions are needed for a program to establish clear accountability, ensure effective coordination, provide direction and guidance, and facilitate decision-making processes. They help maintain structure, promote efficiency, and drive the program towards its objectives. An internal assessment revealed an opportunity to incorporate more formalized professional development opportunities across our AH-MW programs. There will be ongoing collaboration with RPDs to assess the responsibilities of the leadership roles. The formalized leadership roles will be available to the 2024-2025 class of residents through an application process at the beginning of their residency year. Further development of the formalized leadership roles is ongoing.

Results: The internal social platform is used by all residents; the average view of each post is 40. In the survey sent to RPDs regarding the mentorship program, the majority responded favorably of a PGY1 mentorship program. Next steps include standardizing the framework of the mentorship program.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Prescribing Tool Implementation on Outpatient Fluoroquinolone Use and Antibiotic Durations in Community Acquired Pneumonia and Urinary Tract Infections

Author: Aleksandra Kiernoziak

Primary Preceptor: Joseph Levato

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

Abstract:

Purpose: The goal of this study was to evaluate the percentage of outpatient community-acquired pneumonia (CAP) and urinary tract infection (UTI) cases with appropriate fluoroquinolone use and appropriate durations of therapy for all antibiotic prescriptions.

Methods: This was a retrospective, pre- and post-study that assessed prescriptions from outpatient clinics within the health system. Encounters were included for review for adult patients with a primary diagnosis of CAP or UTI, including pyelonephritis, who were prescribed an antibiotic. Baseline antibiotic use was analyzed between July 1, 2021 to July 31, 2023. Provider education regarding prescribing trends and discussion of key intervention areas were completed after baseline antibiotic use analysis in January 2024. The post-intervention phase occurred thereafter. Primary objectives were to assess appropriate fluoroquinolone use based on health system use criteria and all antimicrobial durations of therapy based on indication. Secondary objectives included assessing appropriate fluoroquinolone dosing, incidence of Clostridioides difficile infection within 30 days after completing antibiotics, and admissions for CAP or UTI within 90 days after completing antibiotics. Descriptive statistics were used to report patient demographics, and appropriate statistical tests were performed for all other nominal and ordinal data.

Results: In the pre-intervention phase, 257 prescriptions were reviewed for appropriate durations of therapy. Most prescriptions were for a primary diagnosis of UTI (n=233, 90.7%). Of these, 21 patients received a fluoroquinolone, and nine (42.8%) met appropriate criteria. Of the 24 (9.3%) prescriptions written for CAP, 12 (50%) had appropriate durations of therapy. Duration of therapy was appropriate in 151 (64.8%) of 233 prescriptions for UTI-related diagnoses. Based on the low volume of CAP cases, study focus post-intervention will only include UTI cases; post-intervention data collection is currently in process.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of pediatric pharmacy technician competencies in a combined adult and pediatric staffing model

Author: Diana Kim

Primary Preceptor: Brittany Huff

Institution: University of Chicago Medicine

Abstract:

The pharmacy department at the University of Chicago Medicine (UCM) utilizes a combined staffing model where pharmacy technicians alternate between adult and pediatric pharmacies. This dual rotation provides flexibility with scheduling, workflow and staffing shortages. Although all pharmacy technicians are licensed and work at both adult and pediatric sites, the hospital does not have a standardized training program specific to pediatric pharmacy. This is due in part to a lack of published literature and guidelines that specifically delineate training requisites for inpatient pediatric pharmacy technicians. The pharmacy department at UCM currently adopts competency based training (CBT) as its mainstay of training. CBTs are commonly used across many industries to ensure employees are adequately ready to take on their duties. This study would help close the gap in our training program and shed insight into whether CBTs are substantiated in pediatric pharmacy technicians. The primary objective of the study is to evaluate if there was a significant benefit in medication safety after implementing pediatric CBT. Secondary objectives were to measure differences in operational performance and staff satisfaction.

A standardized pediatric CBT program was developed along with a pharmacist satisfaction survey. All technicians who rotate through pediatric pharmacy and participate in the CBT were eligible for the study. Technicians hired within the prior 3 months of the study and those who work less than 8 hours a week, were excluded. For six weeks, technicians involved with the pediatric CBT program were exclusively scheduled to work within the pediatric pharmacy. Comparative data was collected during the 6 week time frame and 3 months prior to the initiation of the study. Differences in medication event reports, automated dispensing cabinet stock outs, medication requests from nursing, and returned medications were evaluated before and after the training was implemented.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimization of Initial Loop Diuretic Dose Selection in Patients Admitted for Congestive Heart Failure

Author: Danielle Konan

Primary Preceptor: Henry Okoroike

Institution: Rush University Medical Center

Abstract:

The purpose of this single-center, retrospective, observational cohort study is to evaluate the implementation of electronic medical record (EMR) changes to optimize intravenous (IV) loop diuretic dose selection in patients hospitalized for heart failure (HF) exacerbation.

The EMR changes included the inclusion of a loop diuretic dose conversion table and a required indication selection within IV loop diuretic orders. If the selected indication was congestive heart failure, wording derived from the DOSE trial populated highlighting that patients on long-term loop diuretic agents should receive 2 to 2.5 times their outpatient dose on a milligram per milligram basis if admitted for a congestive HF exacerbation. A loop diuretic conversion table was also added to the hospital intranet with changes communicated to key stakeholders once implemented. This pre-post evaluation included adult patients presenting to Rush University Medical Center's (RUMC) Emergency Department or Cardiovascular Intensive Care Unit with acute decompensated HF, diagnosed by the presence of at least one symptom and one sign of HF. Exclusion criteria included but are not limited to: stage 5 chronic kidney disease or need for ultrafiltration, systolic blood pressure less than 85 mmHg, serum potassium less than 3.0 mEq/L, serum sodium less than 130 or greater than 145 mEq/L, or receipt of a thiazide in the previous 24 hours. The EMR system at RUMC was used to collect data, including demographics, vitals, NYHA classification, ejection fraction, laboratory values, loop diuretic home dose, baseline guideline-directed medical therapy, other cardiovascular medications, and cardiac history. Outcomes included initial dose given as a ratio of outpatient dose, urine output, weight loss, length of stay, and HF readmissions.

Results of this study are pending, but it is anticipated that inclusion of the above EMR changes will lead to improved initial loop diuretic dose selection for patients presenting to RUMC for HF exacerbation.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Cystitis/Pyelonephritis Antibiotic Prescribing – An Unknown Quantity

Author: Katie Koss

Primary Preceptor: Fischer Herald

Institution: Rush University Medical Center

Abstract:

Abstract (maximum 300 words)The recommended treatment for cystitis is a three- or five-day course of antibiotics based on the antibiotic chosen and a seven-day course for pyelonephritis. Inappropriate duration of therapy can lead to adverse events, increased hospital stays, increased cost, and antibiotic resistance. Rush University Medical Center's (RUMC) Anti-Infective Guidelines recommend either a three-day course of intravenous (IV) antibiotics, five days of nitrofurantoin, or three days of sulfamethoxazole and trimethoprim (SMX/TMP) for treatment of cystitis and a seven-day course of antibiotics for pyelonephritis. However, patients may still receive antibiotic durations longer than recommended.

This is a single center, retrospective cohort study of antibiotic durations for cystitis and/or pyelonephritis who received antibiotics at RUMC. The study period will include cystitis or pyelonephritis diagnoses from June 1st, 2023, to September 1st, 2023, as the control group, and September 1st through March 1st, 2024, as the experimental group. The primary outcome of this study will be the appropriateness of antibiotic duration based on guideline directed therapy defined as above. Patients will be identified by reviewing the urinary tract infection (UTI) list in EPIC, which identifies any patient with an active order and chosen indication for UTI created by information technology that is an existing report utilized by the antimicrobial stewardship group. Safety outcomes will be assessed by analyzing the incidence of mortality within 30 days of discharge, Clostridium difficile incidence within 90 days of discharge, incidence of anaphylaxis, readmission rates, and angioedema within 30 days of discharge.

It is anticipated that results will show, based on RUMC's new Anti-Infective Guidelines, that providers are open to prescribing shorter durations due to these stewardship efforts for both cystitis and pyelonephritis and that antibiotic durations adhere to the recommended, shorter durations.

Results and conclusions of this project are in process.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pharmacy Teammate Wellness: Improving and Implementing New Strategies to Foster Resilience and Wellbeing

Author: Klaudia Kupinska

Primary Preceptor: Anil Soni

Institution: Advocate Good Shepherd Hospital

Abstract:

Purpose: Up to 70% of the pharmacy workforce in the hospital setting is experiencing high rates of burnout and stress brought on by staffing shortages, increased demands, lack of autonomy, and medication shortages. All these factors are leading to an increase in depression, anxiety, and alcohol misuse amongst healthcare workers. The purpose of this project is to analyze gaps between the resources currently available through Advocate Aurora Health for teammate wellness, and current recommendations through organizations like APhA, ASHP, etc. and primary literature. The goal is to formulate a list of best practices and incorporate these into the pharmacy department that are currently not available but recommended.

Methods: A list of all available wellness and resilience resources available through Advocate Aurora Health was compiled by accessing the AAH Wellbeing Self-Care and Mission and Spiritual Care site pages. A literature search was done through Pubmed, Google Scholar, AJHP to obtain new literature on wellness and wellbeing. Organizational sites like APhA, ASHP, ISHP, PSW were evaluated for updated recommendations on wellness and resilience. A gap analysis will be performed to determine what resources are not being offered at Advocate Aurora Health, but are recommended through updated literature and organizations.

Result: Pending

Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Incidence of Thrombosis and Bleeding with 1:1 Intra-Aortic Balloon Pumps Anticoagulated with Therapeutic Unfractionated Heparin

Author: Lauren Lacoursiere

Primary Preceptor: Byron Stevenson

Institution: Northwestern Memorial Hospital

Abstract:

Title: Incidence of Thrombosis and Bleeding with 1:1 Intra-Aortic Balloon Pumps Anticoagulated with Therapeutic Unfractionated Heparin

Authors: Lauren A. Lacoursiere, PharmD, Jessica Rossi, PharmD, BCCP, Byron Stevenson, PharmD, BCCP

Purpose: Intra-aortic balloon pumps (IABPs) have been associated with limb ischemia and thrombus formation; thus, heparin is often used to reduce the associated thrombotic risk. IABPs also increase a patient's risk of bleeding through platelet shearing. Anticoagulation must be carefully balanced with this risk. Published literature has defined a strong association with anticoagulating patients with IABPs at 1:2 and 1:3 support, though the need is less clear with 1:1 support. The purpose of this study is to assess the incidence of thrombosis and bleeding in patients with an IABP at 1:1 support receiving therapeutic unfractionated heparin (UFH).

Methods: This is a single center study evaluating patients admitted to the cardiac care unit (CCU) at Northwestern Memorial Hospital with a femoral IABP at 1:1 support from April 2018 to August 2023. Patients on anticoagulation prior to admission, receiving anticoagulation with anything other than UFH, admitted to the cardiothoracic intensive care unit, or axillary placed IABP patients are excluded. Retrospective chart review will be utilized to collect baseline characteristics, laboratory parameters, IABP, and heparin data. Descriptive statistics will be used to present the data.

Results: The co-primary outcome is the incidence of thrombosis and bleeding from the time of IABP insertion to the time of first wean. Secondary outcomes include CCU length of stay, hospital length of day, and in-hospital mortality.

Conclusion: The results of this study will help elucidate the safety of anticoagulating IABPs at 1:1 with UFH in patients admitted to the cardiac care unit at a large, academic medical center. This will help to demonstrate if this is a safe practice within this patient population.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing the impact of FDA accelerated approval medications added to a hospital formulary

Author: Kelsey LaMartina

Primary Preceptor: Collin Dean

Institution: Northwestern Memorial Hospital

Abstract:

The Food and Drug Administration (FDA) Accelerated Approval Program allows the FDA to expedite approval of medications that treat serious conditions or fill an unmet medical need based on surrogate or intermediate endpoints. Despite the benefits of shorter clinical development time, published criticism of the accelerated approval process, including the use of surrogate and intermediate clinical endpoints, has generated discussions on how medical centers should manage accelerated approval medications. The purpose of this descriptive study is to characterize the clinical, financial, operational, and strategic impact of medications approved via the FDA Accelerated Approval Program from 2019 through 2022 and added to the Northwestern Memorial Hospital (NMH) Formulary to identify opportunities for improvement in the formulary review process.

Medications reviewed for formulary addition by the NMH Pharmacy and Therapeutic (P&T) Committee before December 31, 2022, and administration data from NMH inpatient and outpatient departments from 2019 through 2023 were included. The NMH P&T Committee reviews new formulary requests, and its scope includes an inpatient hospital, several outpatient specialty clinics, and an ambulatory infusion center. Data will be collected from the FDA Center for Drug Evaluation and Research, Drugs@FDA, REMS@FDA, and FDA Medication Guides databases, P&T meeting minutes, and the electronic health record.

The primary endpoint is the difference in patients on accelerated approval therapy at 6 and 12 months post formulary addition. Secondary endpoints include non-formulary administrations prior to NMH P&T review, total spend on withdrawn accelerated approval medications estimated by wholesale acquisition cost at the time of review, and median time from NMH P&T review to full FDA approval.

Data collection is in progress. Analysis of primary and secondary endpoints may identify attributes of accelerated approval medications that can guide quality improvement efforts, such as high expenditure, increases or declines in use, lack of use, and high discontinuation rates.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Human immunodeficiency virus (HIV) Incidence and Pre-Exposure Prophylaxis (PrEP) prescribing trends within a Federal Health Care Center

Author: Hau Le

Primary Preceptor: Hannah Brennan

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

Abstract:

Purpose: Veterans are at a disproportionally higher risk of developing HIV due to various risk factors such as injection drug use. While the use of PrEP has significantly reduced the incidence of HIV, there are still many barriers to the initiation of PrEP. There are a limited number of studies on potential barriers to PrEP prescribing specific to veterans. Therefore, this study will investigate PrEP prescribing trends within a Federal Health Care Center (FHCC) and HIV incidence rates.

Methods: A list of patients with HIV exposure risk factors, defined as those with a history of injection drug use, men who have sex with men, or those with a history of sexually transmitted infections (STIs) or history of STI testing (≥ 2 tests within 1 year or ≥ 1 positive STI test within 1 year) was generated utilizing ICD-10 codes for the risk factors from October 2020 to September 2021. Simple randomization was performed to select patients for chart review. Primary outcomes included incidence of HIV. Secondary outcomes included proportion of patients at high risk being placed on PrEP, proportion of patients not evaluated by an FHCC provider, and number of patients whose PrEP was discontinued due to adverse effects or barriers. Baseline characteristics gathered include age, gender, patient sexuality, kidney function, hepatitis status, triglycerides, HIV viral load, reported known HIV exposure, clinical risk factors for osteoporosis, and comorbid conditions which affect adherence. Outcomes data collected include HIV 1/2 antigen test, documented perceived/actual barriers to PrEP, proper follow up for PrEP (defined as a follow-up evaluation every 3 months while on PrEP), and PrEP medication history. Data will be analyzed after de-identification using descriptive statistics and will be collected, organized, and stored through a password-protected excel sheet on the VA network.

Results: Results pending completion of review of data set.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Peripheral Neuropathy in Dose-Adjusted EPOCH

Author: GeMiracle Lee

Primary Preceptor: Rebecca LaRue

Institution: Rush University Medical Center

Abstract:

Project Title: Peripheral Neuropathy in Dose-Adjusted EPOCH

Principal Investigator: GeMiracle Lee, PharmD

Project Preceptors: Rebecca LaRue, PharmD, BCOP and Danielle Murphy, PharmD, BCOP, BCPS

Purpose: Conduct a retrospective analysis of the incidence of peripheral neuropathy in patients receiving the dose-adjusted EPOCH chemotherapeutic regimen at Rush University Medical Center (RUMC). Will identify any dose reductions or omissions of therapy and characterize the impact this had on patient survival.

Background: Dose-adjusted EPOCH is currently utilized as frontline therapy for diffuse large B-cell lymphoma (DLBCL); a fast-growing cancer requiring aggressive chemotherapy treatment. Unfortunately, this regimen has been associated with many side effects including peripheral neuropathy.

Methods: This is a single-center retrospective cohort study with data collected utilizing electronic medical records at RUMC. We analyzed data from 78 patients with a diagnosis of DLBCL who have received the regimen while inpatient at RUMC over the last 5 years were analyzed using chart review.

Data used in this research includes, length of stay, side effects related to treatment as documented in chart notes, supportive care interventions, chemotherapy dosing, dose reductions, response rates, progression free survival, and patient demographic information (weight, age).

Data was initially collected from the EPIC electronic medical record pertaining to each specific patient. That information was entered into a RedCap record with a unique Study ID for each patient. The

information was then exported into a password protected Microsoft Excel file to protect patient identity. All records will be maintained electronically. This document will be stored in the RUMC secure network system. Statistical analysis of the collected data is in process.

Final results and conclusion are pending at this time.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Retrospective Review of the Effectiveness of Pseudoephedrine vs. Midodrine as Adjunctive Therapy for Weaning of Intravenous Vasopressors for Neurogenic Shock After Acute Spinal Cord Injury

Author: Nicholas Lombardo

Primary Preceptor: Lina Piech

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

Abstract:

Purpose: Patients with acute spinal cord injury (ASCI) frequently require long-term vasopressor therapy to manage hypotension associated with neurogenic shock. Disordered blood pressure management often leads to long-term intensive care unit (ICU) stays, with vasopressors being a barrier to discharge. Limited evidence exists to suggest that this barrier can be overcome by adding adjunctive oral therapy with either pseudoephedrine (PSE) or midodrine to help reduce vasopressor requirements. This study compares the effectiveness of these agents as adjunctive therapy for weaning of vasopressors for neurogenic shock after ASCI.

Methods: This single-center, retrospective chart review evaluates patients >18 years old (n = 11) admitted to the trauma service with ASCI between October 11, 2020-August 1, 2023, who received vasopressors for >2 hours and required >3 doses of PSE or midodrine for the treatment of neurogenic shock. Exclusion criteria: concurrent PSE and midodrine therapy, pregnancy, history of adrenal insufficiency, use of steroids, death within 24h of admission, vasopressors administered for <2 hours, use of PSE or midodrine not for vasopressor weaning. Primary outcome: the rate of treatment success of PSE vs. midodrine when used as an adjunctive agent to facilitate the weaning of vasopressors in patients with neurogenic shock after ASCI. Secondary outcomes: percent decrease in vasopressor use at 24h and 48h after initiation of oral therapy, time of initiation of oral therapy to discontinuation of vasopressors, hospital and ICU length of stay, and mortality rate. Pertinent data collected: age, gender, sex, cause of ASCI, hemoglobin at admission, 24 and 48h after admission, surgical intervention for ASCI, injury level, total daily dose of PSE or midodrine, information related to vasopressor usage, and blood transfusion and intravenous fluids administered in first 24h of admission.

Results: This study is Institutional Review Board approved and results are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Hormonal Therapy Administered to the Potential Organ Donor Following Catastrophic Traumatic Brain Injury

Author: Matthew Long

Primary Preceptor: Lina Piech

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

Abstract:

Purpose: There is limited literature supporting hormonal therapy use prior to brain death declaration in patients who suffer irreversible catastrophic brain injury to increase hemodynamic stability of the potential organ donor and procurement rates. At Advocate Christ Medical Center (ACMC), a hormonal cocktail, including hydrocortisone, vasopressin, and levothyroxine, is often utilized early after catastrophic brain injuries to improve outcomes compared to administration following brain death declaration. This study reviews the impact that levothyroxine hormonal therapy has on hemodynamics and organ procurement rates in these irreversible catastrophic brain injury patients prior to brain death declaration.

Methods: This multi-center, retrospective review evaluates trauma patients admitted to either ACMC or Advocate Lutheran General Hospital from October 11, 2020 through August 1, 2023. Eligible patients have been identified through the electronic medical record by utilizing ICD-CM codes for traumatic brain injury and brain death. Patients with the following criteria are included: age ≥ 18 years old and declared brain dead during admission. Patients with the following criteria are excluded: pregnancy, death or declared brain dead within 24 hours, previous transplant history, chronic steroid use or thyroid supplementation within the past 30 days, human immunodeficiency virus (HIV) positive, and withdrawal of care. The primary outcome is mean vasopressor doses at baseline, 4 hours, and immediately prior to brain death declaration. Secondary outcomes include time to brain death diagnosis, mean heart rate (HR) and mean arterial pressure (MAP) at baseline, 4 hours, and immediately prior to brain death declaration, and number of organs successfully procured. Safety outcomes include severe hypertension (systolic blood pressure ≥ 180 mmHg), severe tachycardia (HR ≥ 150 beats per minute), and new onset arrhythmia.

Results: In progress

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluate Fluid Resuscitation in Patients with Heart Failure and Septic Shock

Author: Donald Lu

Primary Preceptor: Zane Elfessi

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

Abstract:

Evaluate Fluid Resuscitation in Patients with Heart Failure and Septic Shock

Purpose: The Surviving Sepsis Campaign recommends at least 30 mL/kg of intravenous crystalloid fluid to be administered within the first 3 hours of sepsis presentation. The appropriate amount of resuscitation fluid in congestive heart failure (CHF) patients remains unclear. The purpose of this study was to evaluate the volume of fluid used and the outcome in CHF patients admitted with sepsis or septic shock at Jesse Brown VA Medical Center.

Methods: The study was a retrospective chart review identifying Veterans with history of CHF and an admission diagnosis of sepsis or septic shock. Patients were stratified based on whether they met the bundle criteria for fluid resuscitation bundle (≥ 30 mL/kg).

Results: Sixty-nine patients with a diagnosis of sepsis or septic shock were screened; 13 (19%) had a history of CHF and were included in the study. Three (23%) patients met the fluid resuscitation bundle goal (≥ 30 mL/kg) with a mean of 35.4 mL/kg vs. 11.9 mL/kg ($p = 0.003$) received. Baseline characteristics were similar with a mean age of 75 years-old, average mean arterial pressure of 71 mmHg, and mean ejection fraction of 51%. SOFA scores on admission were significantly higher in the ≥ 30 mL/kg group (6.0 vs. 2.8, $p = 0.043$). Though the mortality rate was not significantly different, $p = 0.631$, mean hospital length of stay (LOS) was significantly higher in the ≥ 30 mL/kg group (14.3 days vs. 7.4 days, $p = 0.046$).

Conclusion: Patients who received more than 30 mL/kg of fluid had more severe initial presentation but did not have an increased mortality outcome. Higher LOS in the ≥ 30 mL/kg group may be attributed by the severity of illness; however, further studies should be conducted to clarify the volume necessary for sepsis resuscitation in CHF patients without causing volume overload.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Vancomycin AUC/MIC estimations performed with trough only levels

Author: Dawson Lubbert

Primary Preceptor: Katelyn Stout

Institution: Blessing Hospital

Abstract:

Purpose:

The current Infectious Disease Society of America (IDSA) recommended method of monitoring vancomycin for serious infections caused by methicillin-resistant Staphylococcus aureus is to calculate the ratio of the area under the concentration-time curve over 24 hours to minimum inhibitory concentration (AUC/MIC24) by using a vancomycin peak and trough levels. The IDSA also stated that AUC/MIC24 could be calculated using only a trough level but advised that additional research needed to be done on this method. The purpose of this study is to report the accuracy of AUC/MIC24 calculations performed with only a vancomycin trough.

Methods:

This retrospective, single center, study was IRB exempt. Patients having undergone AUC/MIC24 monitoring for vancomycin therapy from January 1 of 2022 to August 31 of 2023 were identified. The primary outcome of the study was the accuracy of the average AUC/MIC24 when calculated using only a serum trough. Paired AUC/MIC24 calculations will be performed using Bayesian modeling for trough-only estimations and The Sawchuk-Zaske method for peak-trough estimations. Preliminary data was analyzed using a Wilcoxon Signed-rank test.

Results:

Preliminary results are as follows: Twenty-eight patients have been identified to have appropriately collected vancomycin peak and trough levels. The mean AUC/MIC24 calculated using both a peak and trough was 504.54, while the mean AUC/MIC24 was 500.61 when using solely a trough ($p=0.82$). The recommended dose for each method differed by 8.93 mg, with single level calculations yielding a higher average dose of 1232.14 mg. The difference in average dosing interval was 0.86 hours, with peak-trough calculations recommending a longer interval.

Conclusion:

Full results and conclusions will be presented at the Illinois Pharmacy Resident Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of the Safety of Iron Sucrose Administration on an Acute Internal Medicine Service

Author: Sophia Luk

Primary Preceptor: Bonnie Hoots

Institution: Northwestern Memorial Hospital

Abstract:

At Northwestern Memorial Hospital, 200 mg of iron sucrose has been standardized to be given once daily for up to five doses for a cumulative dose of 1000 mg. Historically, it has been administered via intravenous (IV) infusion over 30 minutes, which is the most common administration practice on acute internal medicine services. An update in December 2022 now permits providers to order IV push administration over two to five minutes. Although iron sucrose's package insert permits IV push administration for doses up to 200 mg, there has been a growing concern for hypotensive episodes or hypersensitivity reactions associated with this route of administration.

The purpose of this study is to quantify the rate of adverse drug events (ADEs) that result in cessation of medication or conversion to an alternative administration route of iron sucrose. This study will be a retrospective cohort study of patients admitted to an acute internal medicine service who received iron sucrose given as IV infusion or IV push. It will examine the rates of acute ADEs during the six-month period of January 1, 2023 through June 30, 2023.

The primary objective will be the rate of hypotensive episodes or hypersensitivity reactions. A hypersensitivity reaction is defined as angioedema of the tongue or airway, resulting in compromised respiration or symptoms of end organ dysfunction, or the administration of anaphylactic medications within 30 minutes of iron sucrose administration. Secondary objectives include the number of ADEs by indication, rate of acute Fishbane reactions, and rate of any adverse drug reaction documented in the EMR within 30 minutes of administration of iron sucrose.

The results of this study will help determine if iron sucrose administered as IV push is a safe alternative to IV infusion and thus change practice within our institution. Results are pending data collection and analysis.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Methicillin Resistant Staphylococcus Aureus Nasal PCR Use in Skin and Soft Tissue Infections

Author: Sneha Maddi

Primary Preceptor: Tanya Abi-Mansour

Institution: Ascension Saint Mary - Chicago

Abstract:

Staphylococcus aureus is a common organism in skin and soft tissue infections (SSTIs). Anti-methicillin resistant S. aureus (MRSA) therapy is commonly used as empiric therapy in hospitalizations. However with growing resistance it is imperative to de escalate therapy as early as indicated. MRSA nasal PCR tests have shown a high negative predictive value in ruling out MRSA infections in pneumonia and have been established as a de escalation tool. MRSA nasal PCR use could be beneficial for de escalation in SSTIs. However, it is unclear what the negative predictive value of MRSA nasal PCR tests are in SSTIs.

A single center, retrospective chart review study was conducted by analyzing patient charts from January 1, 2022 to December 31, 2023. The primary endpoint was the negative predictive value (NPV) - the percentage of patients with a negative MRSA nasal PCR with a wound culture that was not growing MRSA. The secondary endpoints were the percentage of patients with a positive MRSA nasal PCR with a wound culture that was growing MRSA (PPV), sensitivity, specificity, days on empiric anti-MRSA therapy, and time from negative MRSA PCR to de escalation of anti-MRSA therapy. Data collection is ongoing.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Alcohol Withdrawal Syndrome Management at an Urban Safety Net Hospital

Author: Justin Malacaria

Primary Preceptor: Zibin Zhang

Institution: Mount Sinai Hospital Medical Center

Abstract:

Purpose: Alcohol Withdrawal Syndrome (AWS) is a severe condition provoked by abrupt cessation of drinking in patients suffering from alcohol use disorders. Effective management, including agent selection and proper dosing upon presentation and throughout a hospital admission, is vital to prevent serious sequelae such as seizures or delirium tremens. Benzodiazepines (BZDs) remain the mainstay of treatment. Adjunctive medications may provide additional benefit, but their use is often limited due to prescriber familiarity and lack of order set inclusion. Phenobarbital potentiates the effect of BZDs and has more predictable kinetics, a wider therapeutic index and a prolonged duration of action that allows for one-time dosing. Other symptom targeted medications may provide additional benefit. The purpose of this study is to compare baseline medication use and overall treatment appropriateness to practices post-guideline implementation, prescriber education and benzodiazepine shortages.

Methods: This is a pre- and post-implementation retrospective electronic health record (EHR) review of adult patients treated for alcohol withdrawal. The baseline study evaluated 50 patients with AWS. An EHR report of the AWS order set and BZD use was run to identify patients for inclusion in the initial study. Patient data including demographics, sequencing of agents, dose appropriateness, route, frequency of assessment and use of adjunctive medications were extracted. The Emergency Department guideline for AWS was subsequently updated and approved by the Pharmacy and Therapeutics Committee. Provider education on the updated guideline, best practices in light of current BZD shortages and appropriate selection and use of various agents will be provided. Post-intervention analysis with descriptive statistics will be conducted using the identical variables as the first phase. The hospital's institutional review board has approved this study.

Results: Data collection from the post-implementation phase is ongoing and results will be included at the time of presentation.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Standardization of Adult IV Administration Guidelines with Integration of Venous Access and Compatibilities in a Multi-Site Health System

Author: Sylwia Marianski

Primary Preceptor: Rimple Patel

Institution: NorthShore University HealthSystem

Abstract:

Purpose: The Institute for Safe Medication Practices' Safe Practice Guidelines for Adult IV Administration Medications recommend providing clear, relevant guidelines that clarify confusing terminology and avoid leaving decisions open to interpretation by pharmacists and nurses. The aim of this initiative is to establish standardized guidelines for the administration of intravenous medication for adult patients across the health system. The projects will include venous access and compatibilities for midline and peripherally inserted central catheter lines. The goal is to create a single document that adheres to a consistent format and content, meets the current needs of pharmacy and nursing personnel, and enhances safety standards, resulting in better outcomes for patients.

Methods: This was a quality improvement project and therefore exempt from Institutional Review Board approval. The first step in the standardization process was a review of current adult IV administration guidelines across the health system. A committee consisting of representatives from each hospital site was formed to reach a consensus on what should be included in the updated guidelines. The implementation of these changes will involve educating staff members and updating medication orders, guidelines, and infusion pumps.

Results: Pending

Conclusions: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Patient Outcomes Pre- and Post-Implementation of Updates to the Diabetic Ketoacidosis/Hyperosmolar Hyperglycemic State Order Set at a Community Teaching Hospital

Author: Daria Maslowski

Primary Preceptor: Darah Bec

Institution: Ascension Saint Francis

Abstract:

Purpose:

Normal saline is commonly used for fluid resuscitation in hyperglycemic crisis treatment. However, due to its higher than physiologic concentrations of sodium and chloride, its use can lead to complications such as hyperchloremic metabolic acidosis, inflammation, renal vasoconstriction, acute kidney injury, hypotension, and death. Balanced electrolyte solutions, such as Lactated Ringer's and Plasma-Lyte, have electrolyte concentrations similar to human plasma. This study aims to evaluate patient outcomes associated with normal saline compared to Lactated Ringer's use in diabetic ketoacidosis and hyperosmolar hyperglycemic state treatment.

Methods:

An institutional review board approved this retrospective chart review study. Included will be data from up to 60 patients in each of the pre- and post-implementation groups for the updated hospital order set regarding fluids used in hyperglycemic crisis treatment. Patients 18 years of age and older, diagnosed with diabetic ketoacidosis or hyperosmolar hyperglycemic state, admitted to the intensive care unit, and those who received fluids for at least four hours are included. The study excludes patients who are under 18 years old, received both normal saline and Lactated Ringer's for fluid resuscitation, were not admitted to the intensive care unit, received fluids for less than four hours, and received hemodialysis regularly prior to admission. The primary outcome is time to diabetic ketoacidosis or hyperosmolar hyperglycemic state resolution. Secondary outcomes include rate of acute kidney injury, incidence of hyperchloremic non-anion gap metabolic acidosis, duration of insulin treatment, rate of hypokalemia, and length of stay.

Results/Conclusion: Pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Linezolid and Thrombocytopenia in Renal Dysfunction

Author: Tyler Mitzner

Primary Preceptor: Tanya Abi-Mansour

Institution: Ascension Saint Joseph - Chicago

Abstract:

Purpose: One of the more significant toxicities of linezolid is thrombocytopenia, and most frequently occurs after two weeks of therapy. Recent studies have shown elevated serum trough levels of linezolid and an increased incidence of thrombocytopenia associated with either a CrCl ≤ 30 mL/min or an eGFR < 60 mL/min/1.73 m^2. The objective of this study is to assess the incidence of thrombocytopenia in hospitalized patients with renal dysfunction receiving linezolid.

Methods: We conducted a retrospective, multicenter, cohort study of patients who received at least one dose of linezolid across four community hospitals. Patients were stratified based upon creatinine clearance (< 30 mL/min, 30-60 mL/min, and > 60 mL/min) and estimated glomerular filtration rate (< 30 mL/min/1.73 m^2, 30-60 mL/min/1.73 m^2, and > 60mL/min/1.73 m^2). The primary endpoint was incidence of thrombocytopenia as defined by a decrease of platelet count ≥ 25% from baseline up to 48 hours after the final dose of linezolid.

Results: A total of 150 patients that had received linezolid between January 1, 2018 and December 1, 2023 were assessed. The incidence of thrombocytopenia was 23% in patients with a CrCl < 30 mL/min, 25% in patients with a CrCl 30-60 mL/min, 16% in patients with CrCl > 60 mL/min (p=0.46). Thrombocytopenia occurred in 23% in patients with an eGFR < 30 mL/min/1.73 m^2, 23% in patients with an eGFR 30-60 mL/min/1.73 m^2, and 17% in patients with eGFR > 60 mL/min/1.73 m^2 (p=0.61). The average duration of therapy for all patients was 6.9 days.

Conclusion: While there was an increased incidence of thrombocytopenia in patients with renal dysfunction receiving linezolid for about 7 days, there is no significant increase in the risk for thrombocytopenia in decreased renal function.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of Guideline Directed Empiric Antipseudomonal Beta-Lactam De-escalation

Author: Stephanie Mojumdar

Primary Preceptor: Darya Lough

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose:

Broad-spectrum antipseudomonal agents are frequently initiated as a component of empiric treatment regimens due to their effectiveness against gram negative pathogens, notably pseudomonas aeruginosa. While these antibiotics are invaluable agents for treating severe infections, their excessive utilization can help develop antimicrobial resistance. This study aimed to assess the impact of an anti-pseudomonal guideline on reducing inappropriate use of ceftazidime and piperacillin-tazobactam in mild-moderate intra-abdominal infections, community-acquired pneumonia, urinary tract infections, and skin and soft tissue infections.

Methods:

This three phase study was conducted in a community teaching hospital which included retrospective data review from October 2022 to March 2023, guideline implementation in December 2023, and a post-implementation phase from January 2024 to March 2024.

The study included adults aged 18 years and older, admitted from October 2023 to March 2024, who received at least one dose of ceftazidime or piperacillin-tazobactam for treatment of a mild-moderate intra-abdominal infection, community-acquired pneumonia, urinary tract infection, or skin and/or soft tissue infection. Exclusion criteria included pregnant or lactating patients, patients deceased within 48 hours of admission, asymptomatic bacteriuria, or concurrent empiric treatment for infections necessitating anti-pseudomonal coverage, such as complex health-care associated intra-abdominal infection, febrile neutropenia, health-care associated meningitis, hospital-acquired pneumonia, or ventilator-associated pneumonia. Following retrospective review, educational interventions were conducted for pharmacists and physicians to disseminate the anti-pseudomonal guideline.

The primary objectives were reducing inappropriate anti-pseudomonal beta-lactam therapy (measured as antibiotic duration per 1,000 patient days) and decreasing time to de-escalation in hours. Secondary outcomes evaluated safety by assessing C. difficile infections (per 10,000 patient days), mortality rates, and 30-day readmission rates. De-escalation was defined as considering antibiotic reduction when

pseudomonas growth is absent in cultures 48-72 hours' post-initiation, provided the patient remains clinically stable.

Results: Prospective data collection in progress.

Conclusion: Conclusion to be presented at the IL Resident Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Clinical Outcomes of Micafungin for Invasive Fungal Infections in the Obese and Nonobese

Author: Ryan Moran

Primary Preceptor: Elizabeth Cady

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

Abstract:

Echinocandins are an integral part of serious fungal infection treatment. Their efficacy and safety profile compared to other antifungals set them apart as favorable first-line options for a variety of infections. Current IDSA guidelines do not recommend dose adjustments of echinocandins based on weight. Increasing evidence suggests these PK/PD goals may be difficult to attain with standard echinocandin dosing in obese populations. Though data is increasing, less is focused on clinical outcomes comparing obese and nonobese patient populations and none have assessed micafungin alone, the echinocandin on formulary at HSHS St. John's Hospital.

This is a retrospective, single-center chart review of adults with invasive fungal infection admitted between 12/01/2019 and 07/31/2023 at HSHS St. John's Hospital. Primary outcome: favorable clinical response in obese patients (BMI ≥ 30 kg/m2) compared to nonobese patients with invasive fungal infection at the end of antifungal therapy or discharge. Favorable clinical response is defined as resolution of all acute signs and symptoms of primary infection including fever, white blood cell count, and clearance of blood cultures in fungemia. Secondary outcomes: in-hospital mortality, duration of therapy, length of hospitalization, favorable clinical response by obesity subclass (e.g. BMI 30 – 39.9 vs 40 – 49.9).

Patients will be included if age ≥ 18, had a diagnosis/suspicion of invasive fungal infection, and received micafungin for ≥ 72 hours. Patients whose BMI are not calculable at study entry (e.g., weight or height missing) and patients who do not receive the standard dose of micafungin 100 mg IV daily will be excluded. Descriptive statistics including mean, median, and percentages will be used to evaluate baseline characteristics. Outcomes will be evaluated using t-test/Wilcoxon test for continuous data and chi-square or Fisher's exact test for categorical data. Sample size needed to achieve 80% power calculated to be 836 based on previously published incidences.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Prioritizing Periodic Automatic Replenishment Levels

Author: Benjamin Moreno

Primary Preceptor: Sara Wilke

Institution: Rush University Medical Center

Abstract:

Purpose:

Healthcare is a rapidly evolving field with frequent guideline updates, new products being brought to market, and fluctuations in the cost of acquiring products. All these variables influence the amount of product hospitals keep on hand at any given time. The aim of this study was to assess the benefits of reviewing periodic automatic replenishment (PAR) levels of products and tailoring them to the needs of an organization.

Methods:

This study utilized retrospective data to evaluate the financial benefits of reviewing and optimizing PAR levels of high-cost products in Rush University Medical Center's (RUMC) central pharmacy to better align with current usage patterns. Overall, 290 products equating to $1,413,667.87 worth of inventory were identified. The quantity of product on hand, cost per unit of product, estimated days' supply on hand, and cost of current on hand inventory were recorded. Usage over the past year was evaluated using automated dispensing cabinet activity, electronic medical record administration history, and dispense history from the central pharmacy. A total of 54 PARs levels were adjusted to align with the current needs of the organization. Primary endpoints include reduction in carrying cost and reduction in cost of replenishment. Secondary endpoints are changes in inventory turns and monthly drug expenditure compared to last year's financial data. Tertiary endpoints are the number of items consolidated to a single storage space.

Results:

Conclusion:

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Incidence of ventriculitis in patients receiving intraventricular nicardipine and alteplase

Author: Iram Nasreen

Primary Preceptor: Monica Jandura

Institution: Rush University Medical Center

Abstract:

A ventriculostomy catheter or external ventricular drain (EVD) is a thin catheter placed within the brain's ventricles to drain cerebrospinal fluid (CSF). The purpose of this device is to relieve elevated intracranial pressure when normal flow of cerebrospinal fluid is obstructed to prevent harm to brain tissue. There are instances where patients require administration of parenteral medications into the ventricles of the brain via a catheter to manage various acute neurological disease states, such as, intraventricular hemorrhage or vasospasm after aneurysmal subarachnoid hemorrhage (aSAH). Patients with an EVD are at risk for developing ventriculitis. However, there is insufficient evidence regarding the risk of ventriculitis outweighing the benefit of medication administration through an EVD. The purpose of this study is to determine if there is a difference in incidence of ventriculitis between patients with an EVD receiving intraventricular nicardipine or alteplase versus those not receiving intraventricular therapy.

This is a single center, retrospective, observational cohort study at a major urban academic medical center in Chicago, Illinois. Adult patients with an EVD placed at Rush University Medical Center from July 2018 through June 2023 and a diagnosis of aneurysmal subarachnoid hemorrhage or intracerebral hemorrhage (ICH) were included. Patients with outside hospital EVD placement, diagnosis of traumatic brain injury, pregnant women, prisoners, and participants in the CLEAR III Trial were excluded. The incidence of ventriculitis in patients with an EVD who received intraventricular nicardipine or alteplase will be compared to patients who did not receive intraventricular nicardipine or alteplase. Secondary outcomes will include number of EVD exchanges, rate of ventricular shunts, intensive care unit (ICU) and hospital length of stay, and discharge disposition.

Results and conclusions pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Analysis of Community Acquired Pneumonia Prescribing Practices with Pre- and Post-intervention at a Community Teaching Hospital

Author: Derek Nguyen

Primary Preceptor: Alicia Juska

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose: Patients admitted for community acquired pneumonia (CAP) should be treated with guideline directed therapy to minimize readmission rates and ensure antibiotics were completed. It is unclear if providers followed specific treatment algorithms and durations set forth by each institution's antimicrobial stewardship program. The purpose of this study was to analyze whether providers were appropriately selecting the correct antibiotic(s) and duration of therapy for CAP treatment and how pharmacist driven interventions may impact adherence.

Methods: A single-center retrospective and prospective cohort study including patients aged 18 years or older with a CAP diagnosis were evaluated for correct antibiotic selection and duration. A total of 98 patients were included from January 2022 to February 2023 for the retrospective group and 100 patients beginning January 2024 for the prospective group will be analyzed. Patients with hospital acquired or ventilator acquired pneumonia, COVID-19 patients, and those with either Infectious Disease or Pulmonary consults were excluded. Patients with CAP were evaluated as severe or non-severe. Primary outcomes included the percentage of appropriate empiric drug therapy for CAP during the pre- and post-intervention period as well as the duration of CAP treatment. Secondary outcomes included the percentage of 30-day readmission and percentage of Clostridium difficile infections during both intervention periods.

Results: Of the 98 patients evaluated in the pre-intervention group, 51 patients (52%) had appropriate antibiotics selected empirically for CAP treatment and 53 (54.1%) patients had an appropriate duration of therapy while inpatient. Of the 47 patients who were not appropriately prescribed antibiotics, 37 (78.7%) patients were categorized as too broad for their severity. For secondary outcomes, 30-day readmission occurred in 13.3% of patients and 3.1% of Clostridium difficile infections were seen within 30 days of CAP admission.

Conclusion: Final results to be presented at ILPRC following analysis of completed data collection.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Determination of Optimal Anti-Thymocyte Globulin Dose for Renal Transplant Induction

Author: Phi-Linh Nguyen

Primary Preceptor: Derek Owen

Institution: University of Chicago Medicine

Abstract:

Purpose

This quality improvement study seeks to evaluate efficacy and safety of risk-stratified rATG and basiliximab induction agent selection and dosing.

Methods

This retrospective, single-center, quality improvement study at UChicago Medicine included adult recipients of an isolated renal transplant at our center from January 1, 2021 to December 31, 2022. Patients who received both rATG and basiliximab induction were excluded. The primary outcome is to evaluate differences in patient characteristics and risk factors among induction groups. Secondary endpoints are the incidence of biopsy-proven acute rejection, BK viremia requiring intervention, and patient survival at 1-year post-transplant.

Results

A total of 182 patients were included. Patients were stratified into four induction groups: rATG 3 mg/kg (n=33), rATG 4.5 mg/kg (n=64), rATG 6 mg/kg (n=42), and basiliximab (n=43). Patients who received rATG 6 mg/kg were younger than those who received rATG 3 mg/kg (median age: 47 years versus 64 years) or basiliximab (median age: 66 years) ($p < 0.001$). All patients who received basiliximab had a cPRA < 30%. Previous renal transplant recipients were more likely to receive rATG 6 mg/kg compared to basiliximab ($p=0.001$) for a subsequent transplant.

Patients who received basiliximab induction had a higher rate of biopsy-proven acute rejection compared to rATG induction of any dose (basiliximab: 14%, rATG 3 mg/kg: 0%, rATG 4.5 mg/kg: 3.1%, rATG 6 mg/kg: 0%). BK viremia requiring intervention and patient survival were not significantly different among groups.

Conclusions

The majority of isolated renal transplant recipients at our center receive rATG induction. Biopsy-proven acute rejection rates were higher in patients who received basiliximab, however, infectious complications and patient survival were not different. A patient-specific, risk-stratified approach to renal transplant induction is both safe and effective without compromising patient survival.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Standardization of medication therapy management documentation in an electronic health record

Author: Tri Nguyen

Primary Preceptor: Laura Nasca

Institution: NorthShore University HealthSystem

Abstract:

Purpose:

Medication therapy management (MTM) is a service that optimizes therapeutic outcomes for patients. It is an opportunity for pharmacists to evaluate the safety and efficacy of medication therapy, resolve medication-related problems, and perform educational services. This can prevent or reduce adverse drug events, increase adherence, and identify gaps in current therapy.

The ambulatory pharmacist workflow requires identification of new patients for outreach, tracking of patients for intervention follow-up, prioritizing periodic follow-up, and quantifying time spent performing services. Each clinic utilizes various documentation tools and workflows within the electronic health record (EHR) to accomplish these tasks. Additionally, some workflows performed outside of the EHR.

The goal of this project is to standardize the documentation tools as well as automate processes where applicable.

Methods:

The workflow of the ambulatory pharmacists will be mapped to determine how documentation tools are used. Then, a crosswalk between the existing tools versus available features within the EHR will be performed to identify differences. An implementation plan will be created to configure these tools for ambulatory pharmacist clinic documentation, test the new features, and train the end-users.

Results: In process

Conclusion: In process

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Documentation of Pharmacist Interventions at an Integrated Health System Specialty Pharmacy

Author: Elbron Odisho

Primary Preceptor: Karen Thomas

Institution: University of Illinois at Chicago College of Pharmacy

Abstract:

Purpose:

UI Health Specialty Pharmacy Services (UI SPS) is a dual-accredited integrated health system specialty pharmacy which provides patient management services for complex and chronic inflammatory and oncology disease states. UI SPS pharmacists, student pharmacists, and pharmacy technicians make interventions to help patients navigate medication access, treatment side effects, and other treatment-related concerns. UI SPS currently documents pharmacist interventions in a home-grown patient management software. UI SPS is in the process of developing a new, structured process for documenting interventions. The purpose of this study is to characterize historical UI SPS intervention data in preparation for implementation of a new process for intervention documentation in March 2024.

Methods:

A literature search was conducted to investigate published approaches to pharmacy intervention documentation. UI SPS intervention data was reviewed. Interventions documented by UI SPS staff between January 1, 2019 and December 31, 2023 were included in this analysis. Interventions were primarily characterized by the type of intervention completed and intervention counts relative to dispense volume. Deeper analysis was limited by the format of existing intervention data.

Results:

Literature evaluation offered insight into what may be of value to capture during intervention documentation. UI SPS documented 14,191 interventions between 2019-2023. The annual proportions of dispenses resulting in a need for some kind of intervention ranged from 32% to 38% (average 35%) over the 5 years evaluated. Reasons for interventions varied widely, and included education, coordination of care, medication safety, project-related follow up items, and more.

Conclusion:

Review and analysis of historical UI SPS intervention data was valuable during the planning phase for revised intervention documentation processes. Analysis was primarily limited by the existing documentation format.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Effect of an Insulin Basal-Bolus Order Set Update on Insulin Prescribing Practices in General Internal Medicine Patients with Type 2 Diabetes Mellitus

Author: Brandon Olson

Primary Preceptor: Jody Mallicoat

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

Abstract:

Background: Separate sliding scale insulin (SSI) and basal-prandial insulin order sets were combined into one comprehensive order set for adult non-critically ill patients at OSF Saint Francis Medical Center. This comprehensive insulin order set was created to guide providers to guideline recommended regimens based on the patient's diet. If the patient has an oral diet, basal insulin is pre-selected in addition to options for correction and prandial insulin. This study will analyze the effect this order set change had on basal insulin use and blood glucose control in adult internal medicine patients.

Methods: This is a single-center, retrospective study that analyzes basal insulin use and inpatient glycemic control pre- and post-implementation of an updated insulin order set. The pre-implementation period includes admissions from 5/3/2023 through 8/2/2023. The post-implementation period includes admissions from 8/17/2023 through 11/17/2023. The patient population includes adults over 18 years of age with Type 2 diabetes mellitus managed by a hospitalist or internal medicine teaching team. Exclusion criteria include any admission during the period of 8/3/2023 through 8/16/2023, admission with diabetic ketoacidosis or hyperosmolar hyperglycemic state, ICU admission, use of home insulin pump or concentrated insulins, length of stay <24 hours, <4 total glucose levels during admission, and any total parenteral nutrition or enteral nutrition via tube feedings. The primary outcome is percent patient days (PPD) on basal insulin. Secondary outcomes include PPD with at least one BG: <70 mg/dL, <54 mg/dL, >180 mg/dL, and >300 mg/dL; PPD on oral antihyperglycemic medications only, PPD on basal-prandial insulin regimens, PPD on SSI only; and total number of dextrose 50% with water, glucose tablet, glucose 40% gel, and glucagon administrations.

Results: Results are pending and will be included in the final presentation.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of door-to-needle time after implementing tenecteplase as the primary thrombolytic for acute ischemic troke

Author: Maimouna Owaida

Primary Preceptor: Gina Cherniawski

Institution: UChicago Medicine Ingalls Memorial

Abstract:

Purpose

To identify if there is a difference in the door-to-needle (DTN) time between two thrombolytic agents, tenecteplase (TNK) and alteplase (tPA), in the treatment of acute ischemic stroke (AIS) and to identify if implementation of TNK is a safe and effective alternative in a community hospital ED setting.

Method:

This is a retrospective, single center cohort study comparing door to needle (DTN) times between two groups of patients who received either alteplase (tPA) or tenecteplase (TNK) for the treatment of acute ischemic stroke. Patients who was were admitted to Ingalls Memorial Hospital and received either TNK or tPA for AIS from January 1st, 2023 – December 31st, 2023, were included in the study. The primary outcome of this study was comparing the door-to-needle time between tenecteplase and alteplase for patients presenting with acute ischemic stroke. Secondary outcomes total hospital or intensive care unit (ICU) length of stay (LOS), and safety outcomes between the two groups.

Results:

A total of 34 patients were included. In the tPA group, the median DTN time was 87 minutes (95% CI 73.3-105.3) compared to 82 minutes (95% CI 60.5-104.3) in TNK group (p= 0.586). The secondary outcomes were also not significantly different between the two treatment groups except for total hospital LOS with a median of 7 days in the alteplase group compared to 4 days in TNK group (p=0.015).

Conclusion:

There was no significant difference in door-to-needle time between alteplase and tenecteplase for patients presented with acute ischemic stroke. However, TNK use was associated with 42.8% statistically significance reduction in hospital length of stay.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Utilizing Transformative Learning Theory to Enhance Professional Identity Formation: Quantitative Step

Author: Christine Pan

Primary Preceptor: Kathryn Sawlyer

Institution: University of Illinois at Chicago College of Pharmacy

Abstract:

Background/Purpose:

This study investigates Mezirow's Transformative Learning Theory (TLT) applied to pharmacy students' Professional Identity Formation (PIF). TLT fosters self-reflection through disorienting dilemmas, while PIF integrates knowledge, skills, values, and behaviors. While TLT's application to PIF is documented in medical training, its use in pharmacy training lacks literature. Our research analyzes the impact of a TLT-based toolkit on pharmacy students' PIF self-evaluation using the PSIQ-9 and MCPIS-9 questionnaires. Inductive analysis will be used to identify recurring themes within all student recordings created when completing the TLT-based toolkit.

Methods:

A mixed-methods, single-center, interventional cohort study involving pre-clinical pharmacy students at UIC College of Pharmacy during the Fall 2023 semester. Inclusion criteria cover students over age 18, able to consent, completing PIF reflections, and responding to PSIQ-9 and MCPIS-9 during weeks 1, 8, and 15. No exclusions apply beyond non-compliance with inclusion criteria. The first co-primary endpoint is to analyze how the student pharmacists' questionnaire responses changed from week 1 to week 15 concerning their self-evaluation of PIF after completing the TLT-based toolkit. The second co-primary endpoint is to use inductive analysis to identify recurring themes within all student recordings created when completing the TLT-based toolkit. The secondary endpoint examines changes in both questionnaires from week 1 to week 8. Basic descriptive statistics will be used to analyze students' baseline characteristics. The Wilcoxon signed rank test will be utilized to evaluate the nonparametric paired ordinal data collected from both surveys.

Results:

Eleven students completed both PSIQ-9 and MCPIS-9 surveys in weeks 1, 8, and 15. PSIQ-9 results indicated most students demonstrated PIF development and stasis. MCPIS-9 results showed PIF stasis in most questions, with regression in two questions. Results for themes from student recordings are pending.

Discussion/Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Beta-Lactam Therapeutic Drug Monitoring in Hospitalized Patients With Gram-negative Bacteremia

Author: Samantha Pan

Primary Preceptor: Erin Weslander

Institution: Northwestern Memorial Hospital

Abstract:

Background:

Beta-lactam antibiotics are a cornerstone of treatment for patients with serious infections. In these patients, clinical factors may impact pharmacokinetics (PK). A knowledge gap exists regarding which patients would benefit from individualized dose-optimization and best practices for defining and implementing these strategies is unknown. In September 2023, Northwestern Memorial Hospital (NMH) implemented a front-line pharmacist driven beta-lactam therapeutic drug monitoring (TDM) clinical protocol for three beta-lactams: cefepime (FEP), meropenem (MEM), and piperacillin-tazobactam (TZP). The purpose of this study is to evaluate the impact of a pharmacist-driven beta-lactam TDM program on clinical outcomes and PK/PD target attainment for patients with gram-negative bacteremia.

Methods:

This was a retrospective, single center, observational analysis comparing a pre-intervention group to a post-intervention group. The pre-intervention cohort included patients age 18 years or older admitted to NMH between October 1st and December 31st, 2022 receiving active therapy with FEP, MEM, or TZP for gram-negative bacteremia. The post-intervention cohort included patients meeting the above criteria between October 1st and December 31st, 2023 with TDM levels for included antimicrobials.

Results/Outcomes:

The primary outcomes were the proportion of TDM patients achieving 100% time that unbound (free) drug concentrations (fT) exceed the minimum inhibitory concentration (MIC) in a 24-hour period

(fT>MIC), 100% fT>4xMIC, and the proportion of TDM patients with doses changed in response to TDM results. Secondary outcomes include in-hospital mortality, 30-day mortality, transfer to intensive care unit (ICU) after antibiotic initiation, length of stay, nephrotoxicity, or neurotoxicity (defined as one of the following: (i) neurology consult describing neurotoxicity, (ii) EEG findings consistent with neurotoxicity, (iii) and improvement of signs and symptoms of neurotoxicity after antibiotic discontinuation).

Conclusion/Discussion:

The findings of this study will further describe patients that will benefit from beta-lactam TDM for an individualized dosing approach. Results are pending and will be presented at ILPRC.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Pharmacist-run Ambulatory Care Clinic Post-discharge Visits on Congestive Heart Failure Readmission Rates

Author: Fenil Patel

Primary Preceptor: Gia McKnight

Institution: Ascension Saint Francis

Abstract:

Fenil Patel, PharmD

Title: Impact of Pharmacist-run Ambulatory Care Clinic Post-discharge Visits on Congestive Heart Failure Readmission Rates

Purpose: It has been estimated that more than 20% of congestive heart failure (CHF) patients are readmitted within 30 days of initial discharge, despite receiving guideline-directed medical therapy (GDMT). A significant number of such readmissions can be prevented by taking a multidisciplinary approach while transitioning a patient from the inpatient to the ambulatory setting. Pharmacists' intervention in transitions of care could facilitate positive long-term survival outcomes, as well as reduce hospital costs in these patient populations. The purpose of this study is to determine the impact of pharmacist-run ambulatory care post-discharge visits on CHF patient readmission rates.

Methods: A single-center retrospective chart review is conducted at Ascension Saint Francis Hospital in Evanston, Illinois. A literature search of publications from MEDLINE and PubMed was done to determine the current standards of pharmacy practice, as well as published rates of CHF readmissions. A medical chart report is used to identify patients enrolled in SFH's pharmacist-managed pharmacotherapy clinic and identify heart failure patients who were discharged from hospital with diagnosis of CHF. Patients are included if they are 18 years or older, have a reported heart failure diagnosis at discharge and were scheduled and seen in the pharmacotherapy clinic within 30 days of discharge. Patients are excluded from the study if they are < 18 years of age, and do not have CHF diagnosis at discharge. CHF readmissions rates of patients enrolled in the pharmacotherapy clinic for post-discharge management will be compared with house-wide CHF readmission rates. The primary outcome will be the percentage of CHF readmissions within 30 days. Secondary outcomes will be the percentage of CHF readmissions within 90 days of discharge.

Results: In progress

Conclusion: In progress

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Nab-Paclitaxel Dosing in Gynecology Oncology Malignancies at the University of Chicago Medicine

Author: Rohan Patel

Primary Preceptor: Lida Thimothy

Institution: University of Chicago Medicine

Abstract:

Purpose: Paclitaxel-based regimens are recommended as first-line therapy for most gynecology oncology malignancies. However, hypersensitivity reactions occur in approximately 10% of these patients. Nab-paclitaxel is a solvent-free formulation of paclitaxel associated with a lower rate (<1%) of hypersensitivity reactions. Although a suitable alternative for patients with conventional paclitaxel hypersensitivity, there is minimal data on dosing in the gynecology oncology setting. We reviewed the use of nab-paclitaxel and paclitaxel at the University of Chicago Medicine (UCM) to assess the dosing patterns as well as safety outcomes of paclitaxel-based regimens in the gynecology oncology population.

Methods: This was a single-center, retrospective study that included adult patients treated with nab-paclitaxel or paclitaxel for gynecologic malignancies UCM from January 1, 2011 to August 30, 2023. The primary endpoint of this study was the median cumulative dose of nab-paclitaxel and paclitaxel in mg/m2. The secondary endpoints were the median initial dose in mg/m2, and rates of neutropenia, anemia, thrombocytopenia, and peripheral neuropathy.

Results: There is no statistically significant difference in the median cumulative dose between nab-paclitaxel and paclitaxel (817.5 [512.5-902.5] mg/m2 vs. 872.5 [700-1050] mg/m2, p=0.370). There was also no statistically significant difference in median initial dose of nab-paclitaxel and paclitaxel (175 [135-175] mg/m2 vs. 175 [175-175] mg/m2, p=0.327). The nab-paclitaxel and paclitaxel groups had comparable rates of neutropenia (16.7% [2/12] vs. 38.9% [7/18], p=0.249), anemia (75.0% [9/12] vs. 66.7% [12/18], p=0.704), thrombocytopenia (0% vs. 16.7% [3/18], p=0.225), and peripheral neuropathy (75.0% [9/12] vs. 61.1% [11/18], p=0.694).

Conclusions: At UCM, patients received similar cumulative doses of nab-paclitaxel and paclitaxel in the treatment of gynecologic malignancies, while demonstrating a comparable safety profile.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Emergency Medicine (EM) Pharmacist on Door-to-Needle Time of Tenecteplase Administration in Patients with Acute Ischemic Stroke within a Health-System

Author: Shivani Patel

Primary Preceptor: Manar Kandil

Institution: OSF Saint Anthony Medical Center

Abstract:

Impact of Emergency Medicine (EM) Pharmacist on Door-to-Needle Time of Tenecteplase

Administration in Patients with Acute Ischemic Stroke within a Health System

Shivani Patel, PharmD; Manar Kandil, PharmD, MS, BCPS, BCCCP; Marianne Pop, PharmD,

MPH, BCPS

Purpose:

Acute Ischemic Stroke (AIS) is the leading cause of mortality and disability in the United States. Due to the debilitating effects of AIS, a prompt door-to-needle (DTN) time is pivotal for favorable neurologic outcomes. Previous literature of alteplase demonstrated improved DTN times with the presence of an EM pharmacist, however, there are no studies evaluating tenecteplase. This study explored the impact of EM pharmacists on DTN time of tenecteplase in AIS patients.

Methods:

This was a retrospective, multi-center, cohort study conducted within a 15-hospital

health system. A total of 340 adult patients were included who presented to the emergency department with a diagnosis of AIS and received tenecteplase from January 2023 - January 2024. The primary outcome was the DTN time with and without the presence of an ED pharmacist. Baseline characteristics, NIH Stroke Scale, secondary outcomes such as, goal of DTN time ≤ 60 minutes and ≤ 45 minutes, door-to-imaging time, imaging-to-needle time, hospital length of stay, Modified Ranking Score at discharge and after 90 days, safety parameters and the use of antihypertensive were collected. Descriptive statistics will be used to describe nominal data and continuous data will be compared using Wilcoxon or log-rank test. Results and conclusions are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of Sodium-Glucose Cotransporter-2 Inhibitors on Septic Shock Outcomes

Author: Christine Pham

Primary Preceptor: Sarah Zavala

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

Abstract:

Background: Septic shock is associated with a high mortality rate. Patients with heart failure (HF) have increased mortality rates in sepsis. Predisposing risk factors include diabetes mellitus (DM), chronic kidney disease (CKD), and hemodialysis. Patients with DM, HF, and CKD are often prescribed sodium-glucose cotransporter-2 inhibitors (SGLT2i) per guideline recommendations. Previous studies have investigated SGLT2i use in risk of sepsis and other diseases causing multi-organ failure. However, data is lacking regarding SGLT2i's role in septic shock. The purpose of this study is to determine the impact of SGLT2i on septic shock outcomes.

Methods: This study was conducted via retrospective chart review of patients at Jesse Brown VA Medical Center admitted to the intensive care unit (ICU) between July 1, 2021 and June 30, 2023 with an admission diagnosis of "sepsis" and/or "septic shock" per ICD-10 codes. Patients who were taking SGLT2i prior to admission were compared to those who were not. The primary endpoint was inpatient mortality. Secondary endpoints were hospital length of stay (LOS), ICU LOS, and new or worsening organ dysfunction.

Results: 30 patients were screened; 11 patients met eligibility criteria (4 patients on SGLT2i prior to admission). There was no inpatient mortality with SGLT2i use compared to 2 deaths in the control group ($p = 0.49$). SGLT2i use showed numerically lower hospital LOS and ICU LOS at 5.5 days and 2.2 days, respectively, compared to 8 days and 3 days in those who were in the control group ($p = 0.69$ and 0.35, respectively). Additionally, SGLT2i resulted in numerically less mechanical ventilation ($p = 0.49$) and cardiac arrests ($p = 0.49$).

Conclusions: SGLT2i use showed numerically lower sepsis outcomes and length of stay. Future studies with larger sample sizes are needed to further determine SGLT2i impact on septic shock outcomes.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Development and Implementation of Cold Chain Shipping into an Outpatient Pharmacy Mail Order Service

Author: Alexandra Phen

Primary Preceptor: Patrick Louie

Institution: NorthShore University HealthSystem

Abstract:

Development and Implementation of Cold Chain Shipping into an Outpatient Pharmacy Mail Order Service

Alexandra Phen, Pharm D; Patrick Louie, PharmD, MS, MBA; Aleksandr Gershteyn, PharmD; Kevin Louie, PharmD

Purpose:

Many prescription and over-the-counter medications can be stored at room temperature. However, there is a growing number of medications that require precise temperature storage. The United States Pharmacopeia defines refrigerated medications as those that must be stored between 2^{o}C-8^{o}C (36^{o}F-46^{o}F). Maintaining the cold chain is imperative to shipping refrigerated medications in order to preserve the quality, efficacy, and safety of the medication. The outpatient pharmacy located within the multi-hospital community health system offers mail-order services for patients filling medications that require storage at room temperature, but currently does not ship medications requiring storage between 36^{o}F-46^{o}F. The primary objective of this project is to create a standard operating procedure for shipping refrigerated medications. This procedure aims to verify that the cold chain is maintained throughout the shipping process. The secondary objective of this project is to implement the workflow and to track the volume of prescriptions delivered successfully.

Methods:

Refrigerated medications will be packaged in different configurations and tested across various ambient temperatures throughout different seasons. The packages will undergo reconfiguration and additional testing, if needed, to determine the optimal setup for maintaining refrigerated temperatures. Test packages will be shipped and temperature will be monitored using a digital data logger thermometer. A

standard operating procedure will be developed and regularly updated to ensure that shipping practices maintain temperature stability. Personnel from the outpatient pharmacy will receive training in order to effectively implement this standard operating procedure for shipping refrigerated medications. Monthly audits will be completed to track the volume of packages shipped and the quantity of successful deliveries.

Results: Pending

Conclusions: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Strategies to Reduce IV Medication Waste and Decrease Drug Expenditure at an Large Academic Medical Center

Author: Elisha Powell

Primary Preceptor: Brittany Huff

Institution: University of Chicago Medicine

Abstract:

Purpose:

With an increased focus from the C-Suite to decrease costs, health systems are continuously seeking strategies to meet these demands. Annually, the United States healthcare system exceeds a cost of hundreds of millions of dollars in unused drug waste. At major academic medical centers like the University of Chicago Medical Center, significant opportunities exist to decrease costs by optimizing drug utilization. Currently, unused intravenous medications are stored in bins until capacity is reached, disposed of, and then refilled multiple times per week. The objective of this study was to understand and target the root causes of extensive medication waste to assist with managing drug costs within the organization.

Methods:

This retrospective, single-center study utilized a combination of physical data collection and analysis of DoseEdge reports to assess the primary drivers behind intravenous medication waste, with the aim of implementing targeted waste reduction strategies.

Results:

Research in progress

Conclusion:

Research in progress

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing Antibiotic Utilization Trends in Veterans Affairs (VA) Patients with Carbapenem-Resistant Acinetobacter baumannii (CRAB) Infections

Author: Ana Pranjic

Primary Preceptor: Ursula Patel

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

Abstract:

Purpose:

Carbapenem-resistant Acinetobacter baumannii (CRAB) is a major cause of nosocomial infections in the United States, causing an estimated 8,500 infections in hospitalized patients and 700 deaths in 2017. Acinetobacter baumannii is often intrinsically resistant to several classes of antibiotics, including aminoglycosides, and it can easily acquire resistance to other antibiotics, including carbapenems, making it very difficult to treat. CRAB infections are the fourth leading cause of death due to antibiotic resistance with 28-day mortality rates exceeding 45% in clinical trials. Due to its drug-resistant nature, limited treatment options, and high risk for mortality, CRAB was listed as one of five most urgent public health threats to society, according to the Centers for Disease Control and Prevention (CDC). The purpose of this study is to evaluate antibiotic utilization trends and outcomes in the treatment of CRAB infections in the veteran patient population.

Methods:

This is a national VA, retrospective cohort study within a 5-year timeframe (Jan 2018-December 2023). The study population will consist of all adult veterans in the national VA database who had positive cultures for CRAB within the Veterans Affairs Health System. The VA national microbiology, pharmacy, and encounter data sources will be utilized to collect data on demographics, microbial cultures and antimicrobial treatment(s) received. There will be a chart review component for data verification purposes as well as to collect additional data points, such as: antibiotic dosing, duration of therapy, determination of true infection versus colonization, and 90-day mortality. Descriptive statistics will be utilized to analyze treatment and outcome data.

Results/Conclusions:

Results and conclusions to be presented at the conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Vasopressor Administration via Peripheral Line versus Central Line

Author: Kanijah Pryor

Primary Preceptor: Lisa Patel

Institution: NorthShore University HealthSystem

Abstract:

Central line placement is preferred for vasopressor administration to decrease the risk of tissue ischemia and extravasation. However, strict requirements can result in consequences such as delay of care while awaiting line placement and risk of central line infections. Existing literature supports short-term use of peripheral lines for vasopressors in specific patient scenarios. These scenarios are dependent on factors such as concentration, dose, location of line access, and duration of vasopressor use. The purpose of this project is to develop more specific guidelines that delineate the criteria for choosing a central versus peripheral line for vasopressor administration while still affording providers the flexibility for patient specific decision-making.

A review of internal and external literature was performed of vasopressor administration and guidance for monitoring. A draft of preliminary guidelines incorporating evidence-based recommendations was created, while ensuring flexibility for healthcare providers to make informed decisions during emergent scenarios. An audit was conducted of vasopressor administration at five hospitals within a community health system. This audit consisted of line type, location of line placement, gauge of needle, and whether or not extravasation occurred. Key stakeholders including clinicians, nursing staff, vascular access team, and pharmacists collaborated to gain insights into current workflows and identify potential roadblocks in development of a guideline. Facilitated discussions were held to identify criteria for determining when central lines are essential and when peripheral lines may be a viable alternative. This quality improvement project is exempt from review from Institutional Review Board.

Results to support conclusion are in process and will be presented at Illinois Pharmacy Resident Conference.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Impact of the Implementation of a Dispense Tracking Software at an Academic Medical Center

Author: Courtney Purcell

Primary Preceptor: Sara Wilke

Institution: Rush University Medical Center

Abstract:

Background: Missing medications create additional work for pharmacy staff by responding to medication messages and phone calls from nursing staff and redispensing medications when they cannot be found. Dispense tracking software used to update the location of medications during the distribution process allows for increased visibility between departments resulting in decreased medication waste and time spent responding to missing medication messages.

Purpose: This study's purpose was to analyze the impact of implementing a medication dispense tracking software on pharmacy workload plus pharmacy and nursing perspectives on the medication distribution visibility at an academic medical center.

Methods: This prospective, pre-post implementation study on the impact of implementing a dispense tracking software took place between July 2022 and March 2024. The primary outcome is the medication redispense percentage for missing medications. The secondary outcomes are medication messages related to missing medications and location, phone calls received, associated labor costs, dispense tracking scanning compliance, and opinions from pharmacy and nursing staff on the medication distribution process visibility.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Comparison of Length of Stay in Community-Acquired Pneumonia Patients Who Fit Protocol for Pharmacy-Driven De-escalation of Ceftriaxone to Standard of Care

Author: Brady Raab

Primary Preceptor: Timothy Murrey

Institution: OSF Saint Anthony Medical Center

Abstract:

Purpose: Community-acquired pneumonia (CAP) is a leading cause of hospitalization and mortality and incurs significant healthcare costs. Early switch of intravenous (IV) to oral antibiotics in CAP is safe, effective, and decreases overall length of stay. Pharmacist-assisted implementation of protocols to prompt early switch from intravenous to oral medications have been shown to be safe and effective. This study aims to assess if a pharmacist-lead protocol for de-escalation of ceftriaxone in patients with CAP leads to decreased length of stay when compared to standard of care.

Methods: A retrospective, multi-center study will include patients ≥18 years of age, admitted with CAP or respiratory tract infection and received ceftriaxone from July 1, 2022 to December 1, 2023. Patients are included based on eligibility for intravenous to oral conversion (defined as the absence of continuous nasogastric suctioning, malabsorption syndrome, motility disorders, short bowel syndrome, diet order of "nothing by mouth", or ongoing vomiting or diarrhea). Patients must meet criteria of the ceftriaxone de-escalation protocol, (temperature ≤37.8 C, heart rate ≤100 BPM, respiratory rate ≤24 breaths/min, systolic blood pressure ≥90 mm Hg, on IV antibiotics for ≥48 hours, and SpO2 ≥90% on < 3 liters of supplemental oxygen or baseline home supplemental oxygen requirement) at the time of de-escalation. Patients with extrapulmonary infections, infectious diseases consult, history of organ transplant, hemodynamic instability, neutropenia, meningitis, endocarditis, or HIV will be excluded. The pharmacy driven de-escalation protocol went into effect on July 1, 2023. Patients will be divided into two cohorts based on their admission date being pre-implementation and post-implementation of the protocol. The primary outcome will be length of stay. Secondary outcomes will evaluate days of IV ceftriaxone, total duration of antibiotic therapy, and 30-day readmission rates. Results and conclusions will be presented at ILPRC.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assess the Role of Transitions of Care Pharmacist on COPD Readmission Rates at a Federal Health Care Center

Author: Samantha Rollins

Primary Preceptor: Xuxuan Liu

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

Abstract:

Purpose:

Chronic obstructive pulmonary disease (COPD) is a progressive lung disease that is

characterized by chronic respiratory symptoms due to abnormalities of the airway or alveoli. The Center for Disease Control estimates that 6% of the U.S. population has COPD, compared to 8-19% of veterans. 2 COPD is the 3rd leading cause of death worldwide. Twenty percent of patients hospitalized with COPD exacerbations are readmitted within 30 days. Pharmacist intervention has been shown to reduce 30-day readmission rates from 22.2% to 16%. The objective of this study is to evaluate the impact of pharmacy involvement in Transition of Care on COPD readmission rates.

Methods:

Patients included in this study will be 18 years or older with a COPD related exacerbation

between October of 2020 to October of 2023. Patients will be excluded if they are Department of Defense (DOD) patients, enrolled in hospice or palliative care, or have active malignancy within 12 months of the study period. Primary outcome would include percentage of patients with 30 and 90 day COPD readmissions. Secondary outcomes would include average patient COPD Assessment Test (CAT) score, time to visit after COPD related discharge, percentage of patients on inhaled corticosteroid therapy, and number of patients where a change in inhaler therapy was made based on pharmacist recommendation. Data will be collected using ICD.10 codes for COPD exacerbations from

10/01/2020-10/31/2023. This date range was chosen to properly assess patients who had COPD admission prior to pharmacist involvement in Transition of Care. Each patient's chart will be for primary and secondary outcomes, as well as appropriateness of

inhaled corticosteroid therapy per 2023 GOLD guidelines. Data that is collected will be stored via Microsoft Excel. Primary and secondary outcomes will be analyzed using descriptive statistics.

Results/Conclusions:

Results and conclusions are pending review of the data set.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the Relationship Between Prior Stimulant Use and the Treatment of Childhood-Onset Schizophrenia with Clozapine

Author: Hannah Ryou

Primary Preceptor: Jared Lang

Institution: Ascension Saint Mary - Chicago

Abstract:

Childhood–onset schizophrenia describes the onset of schizophrenia occurring prior to age 13, and early onset schizophrenia (EOS) describes schizophrenia between the ages of 13–17. Childhood–onset schizophrenia can be an early indicator for the significant risk of mortality and disability if treatment is not properly initiated and maintained. Current treatment for childhood–onset schizophrenia include first–generation antipsychotics (ex. haloperidol, risperidone) and second–generation antipsychotics (ex. aripiprazole, olanzapine, quetiapine). Clozapine, the gold–standard therapy for treatment–resistant schizophrenia in adults, has been gaining more off–label use in pediatrics to reduce the severity of treatment–resistant schizophrenia. It has shown to be more effective in treating positive and negative symptoms when compared to the FDA–approved antipsychotics for EOS, such as olanzapine, and quetiapine, but is still considered later–line therapy as the side effects are more prominent in children presumably due to the developmental pharmacokinetic considerations. Attention–deficit hyperactivity disorder (ADHD) is commonly diagnosed in young children and can be used as a predictive factor of schizophrenia in adulthood. ADHD and childhood–onset schizophrenia are commonly co–diagnosed or may be misdiagnosed as the other, due to the cardinal sign of attentional dysfunction in both. First–line therapy for ADHD are stimulants, and studies have proposed a theory that stimulants can induce psychotic symptoms, such as hallucinations and disorganized behavior, due to its mechanism as a dopamine agonist. Another theory presumes prescription stimulants contribute to earlier onset of psychosis in those who would develop psychotic disorders. However, there is limited evidence on the relationship between clozapine and if prior stimulant use increases the risk of psychotic disorders in children. The objective of this study is to determine if there is a relationship between prior stimulant use and treatment-resistant childhood-onset schizophrenia currently being treated with clozapine.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Outcomes of Antifungal Prophylaxis for Newly Diagnosed Acute Myeloid Leukemia Patients Treated with Hypomethylating Agent Plus Venetoclax

Author: Murrah Sabouni

Primary Preceptor: Danielle Murphy

Institution: Rush University Medical Center

Abstract:

Title: Outcomes of Antifungal Prophylaxis for Newly Diagnosed Acute Myeloid Leukemia Patients Treated with Hypomethylating Agent Plus Venetoclax

Authors: Murrah Sabouni, PharmD; Danielle Murphy, PharmD, BCPS, BCOP; Rebecca LaRue, PharmD, BCOP

Purpose

Acute myeloid leukemia (AML) is a heterogenous hematologic malignancy characterized by clonal expansion of myeloid blasts in the peripheral blood, bone marrow, and/or tissues. Clinical presentation often includes life-threatening cytopenias, including neutropenia, which increases the risk of developing invasive fungal infections (IFIs). Induction chemotherapy regimens are chosen based on age and performance status. Those over the age of 65 or with poor performance status receive less intensive induction regimens with a hypomethylating agent and venetoclax. Venetoclax may induce prolonged and profound neutropenia, further increasing the risk of IFIs. This study's purpose is to determine the impact of antifungal prophylaxis (AFP) on AML outcomes and IFI incidence.

Methods

This is an IRB-approved, single-center, retrospective, observational cohort study. Newly diagnosed AML patients over 18 years of age receiving decitabine plus venetoclax with or without azole AFP were included. The electronic medical record system was used to collect data, including patient demographics, comorbidities, Tempus results, chemotherapy regimen, number of cycles received, duration and type of AFP used, onset, type, and site of IFI, absolute neutrophil count (ANC), platelets (PLT), liver function tests, bilirubin, QTc, Galactomannan, and lung CT findings, as well as outcome

related data such as time to count recovery (both ANC, PLT), response rate after cycle 1, bone marrow at day 28 and subsequent bone marrow results after cycle 3 and 4.

The primary endpoint is objective response rate (ORR), defined as the proportion of patients who have complete remission (CR) and complete remission with incomplete count recovery (Cri) or partial response. Secondary endpoints include overall survival (OS), incidence of IFIs, and incidence and severity of adverse events.

Statistical analysis will be conducted using descriptive statistics, Fisher's exact test, chi-sqared, Kaplain-Meier method, and log-rank test. Toxicity will be graded according to CTCAE version 5.0.

Results

Pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Factors that Influence Blood Pressure Lowering with the Use of Sodium Glucose Co-Transporter-2 Inhibitors in Persons with Type 2 Diabetes

Author: Sara Salama

Primary Preceptor: Christie Schumacher

Institution: Midwestern University, Chicago College of Pharmacy

Abstract:

Title: Factors that Influence Blood Pressure Lowering with the Use of Sodium Glucose Co-Transporter-2 Inhibitors in Persons with Type 2 Diabetes

Authors:

Sara Salama, PharmD

Christie Schumacher, PharmD, BCPS, BCACP, BCCP, BC-ADM, CDCES, FCCP

Purpose:

Sodium-glucose cotransporter-2 (SGLT2) inhibitors are currently approved for the treatment of diabetes, heart failure, and chronic kidney disease. While SGLT2 inhibitors are not approved for hypertension, clinical trials such as the Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes (EMPA-REG), Dapagliflozin and Cardiovascular Outcomes in Type 2 Diabetes (DECLARE-TIMI), and Canagliflozin and Cardiovascular and Renal Events in Type 2 Diabetes (CANVAS) trials noted varying reductions in blood pressure with the use of SGLT2 inhibitors. Given the varied but absolute reduction in blood pressure that has been observed with the use of SGLT2 inhibitors, there is an interest in determining the effect of SGLT2 inhibitors on blood pressure reduction based on different patient specific factors.

Methods:

This is a retrospective cohort chart review of patients prescribed an SGLT2 inhibitor from January 2013 to September 2019. The primary objective of this study is to determine the mean change in systolic and diastolic blood pressure observed with the use of SGLT2 inhibitors. Secondary objectives include identifying whether predictors such as the specific SGLT2 inhibitor prescribed, dose of SGLT2 inhibitor

used, baseline systolic blood pressure (SBP), baseline diastolic blood pressure (DBP), baseline A1C, baseline eGFR, age, race, and area deprivation index, are factors that influence blood pressure reduction with SGLT2 inhibitor use.

Results/Conclusion:

Will be presented at the Illinois Pharmacy Residency Conference

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of an Inpatient Pharmacy Technician Competency across a multi-state healthcare system

Author: Serena Salem

Primary Preceptor: Heather Raeder

Institution: Advocate Good Samaritan Hospital

Abstract:

This project proposes the development and implementation of an inpatient pharmacy technician competency program within a multi-state healthcare system utilizing the HealthStream platform. Building upon the success of a previous pharmacist competency initiative, this project aims to enhance the quality of pharmaceutical care and patient safety through improved automation skills in pharmacy technicians.

The project will leverage insights from a needs assessment conducted last year and involve collaboration with the Pharmacy Technician Council (PTC) to tailor the program content to the specific roles and responsibilities of technicians. The framework will be adapted from the existing pharmacist competency, ensuring consistency and ease of integration.

Key steps include:

- Reviewing the existing pharmacist competency in HealthStream.
- Partnering with the PTC to gather input and expertise.
- Obtaining leadership approval from the Pharmacy Leadership Committee.
- Creating the competency modules in HealthStream, including teammate and evaluation components.
- Developing tip sheets for leaders and technicians.
- Implementing the program and providing ongoing support.

This project is expected to contribute significantly to the safe and effective medication management for hospitalized patients by enhancing the skills and knowledge of pharmacy technicians within the healthcare system.

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2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of a Report for Empiric Therapy Appropriateness for Cystitis and Pyelonephritis at Northwestern Medicine Hospitals

Author: Sumayya Sami

Primary Preceptor: Jaime Borkowski

Institution: Northwestern Medicine Delnor Hospital

Abstract:

Purpose

Prescribing patterns for urinary tract infections sometimes appropriately differ from recommended empiric therapy due to patient risk factors, resistance, and other limitations. Northwestern Medicine (NM) utilizes a report which contains an overview of compliance with system guidelines for empirical antibiotic selection. The utility of the "Inpatient Empirical Prescribing Report" is limited due to the unknown number of patients who require alternative therapy. This study's purpose was to determine the percentage of patients that require alternative empiric therapy for cystitis and pyelonephritis and to use the findings to improve the report's accuracy.

Methods

In this retrospective descriptive study, we included hospitalized patients admitted to NM Delnor Hospital from May 3, 2023, to December 30, 2023, with a diagnosis of cystitis or pyelonephritis. Study groups included patients qualifying for first line empiric therapy and those who qualified for alternative empiric therapy. Patients who qualified for alternative empiric therapy included patients with a history of resistance from cultures in the past 12 months, recent antibiotics prior to admission, patients with a co-infection requiring alternative antibiotic coverage, and patients with recurrent infections despite appropriate treatment. Patient baseline characteristics were compared using chi-square and student t-tests. The data necessary to identify patients was gathered using ICD-10 codes for cystitis and antibiotic order indications for pyelonephritis. The remaining data including urine culture history, comorbidities, and allergies were gathered through chart review. The primary outcome measure was the expected percentage of patients that needed to be initiated on alternative empiric therapy for cystitis and pyelonephritis. Using this information, the "Inpatient Empirical Antibiotic Prescribing" report was validated by comparing the true rate of appropriate empiric therapy from our findings to the reported rate of appropriate empiric therapy from the EDW report.

Results and Conclusions

Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the Impact of Pharmacist-Specific Education on Pediatric Cardiopulmonary Arrest: A Prospective Interventional Study

Author: Maiya Sanderson

Primary Preceptor: Summer Record

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

Abstract:

Abstract (maximum 300 words)Purpose: This study addresses the critical need to enhance pharmacists' proficiency in managing pediatric cardiopulmonary arrest, as recent research reveals a deficiency in preparedness. Despite The Joint Commission recommendations, a shortage exists of pharmacists with specialized pediatric training, leading to diminished pharmacist participation during pediatric codes. This knowledge gap and reduced confidence contribute to potential medication errors, care delays, and jeopardize safety. To bridge the gap, this project will implement a targeted educational program aimed at elevating pharmacists' knowledge and confidence. We aim to achieve a minimum 25% improvement in knowledge immediately post-education, with a sustained 20% increase 30 days after.

Methods: This prospective interventional study aimed to assess the impact of tailored educational programs on pediatric cardiopulmonary arrest knowledge and comfort among pharmacists. The study was conducted within the pharmacy department, with a focus on the emergency department and Children's hospital staff, where pediatric cardiopulmonary arrest may occur. The intervention consisted of a structured pharmacist-specific education program, comprising a baseline survey and pre-assessment to establish knowledge and comfort, resource provision for Pediatric Advanced Life Support (PALS) certification, tailored modules, interactive sessions, immediate post-assessment, and follow-up assessment 30 days later. Data collection included a site wide survey, structured questionnaires for pre- and post-assessment data, and feedback forms to evaluate effectiveness and areas for improvement. Recruitment was carried out through announcements and electronic invitations. The educational sessions were designed to promote hands-on experience, utilizing multimedia and interactive content. Data analysis involved paired t-tests for pre- and post-assessment scores, with significance set at $p < 0.05$. Potential future interventional changes will be introduced based on feedback analysis, addressing gaps or widespread suggestions.

Results: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimizing Management of Seizures after a Cardiac Arrest at an Urban Safety Net Hospital

Author: Anna Sandler

Primary Preceptor: Basirat Gbemikaiye

Institution: Mount Sinai Hospital Medical Center

Abstract:

Post-cardiac arrest status epilepticus (PCSE) and myoclonus (PCAM) are associated with poor outcomes such as long-term neurological disability and death. The optimal antiepileptic drug (AED) regimen has not been well studied, and the risks of aggressive treatment are weighed against the risks of suboptimal doses. This is a multi-phase study evaluating the management of PCSE and PCAM at an urban safety net hospital. It was approved by the Institutional Review Board. The first phase consisted of a baseline medication use evaluation that identified opportunities for improving the management of post-cardiac arrest seizures, and this led to the development of a post-cardiac arrest seizure guideline. The on-going second phase evaluates outcomes in patients following implementation of the new guideline. Patients 18 years or older with PCSE or PCAM surviving greater than 24 hours after cardiac arrest are included. Pregnant patients are excluded. Data extracted includes patient demographics, cause of arrest, arrest rhythm, seizure characteristics, electroencephalography (EEG) and brain imaging findings, outcome based on the cerebral performance category (CPC) scale, and survival. AED selection order, loading dose, maintenance dose, and adjustment based on end organ impairment are also evaluated. The primary objectives of the study are to compare AED selection order and appropriateness of doses before and after guideline implementation. CPC scale outcomes and survival will also be analyzed between the two study phases. Data will be quantified with descriptive statistics, and continuous variables will be analyzed with a paired t-test. As this is a research-in-progress study, data collection for the second phase is still in progress.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Beyond Naloxone - Examining Addiction Medicine Interventions in an Urban Emergency Department Setting

Author: Maggie Schieber

Primary Preceptor: Giles Slocum

Institution: Rush University Medical Center

Abstract:

The purpose of this project was to describe characteristics of patients who utilized addiction medicine resources at our emergency department (ED).

This quality improvement project included patients from July 2022-June 2023 who received naloxone in the pre-hospital setting prior to the ED and then assessed for connections to addiction resources including initiation of buprenorphine or methadone, enrolling in or providing resources for medication-assisted therapy (MAT), and ordering take-home naloxone kits prior to discharge. The data collected included demographics, naloxone specifics, buprenorphine or methadone initiation, documented take-home naloxone kit provided, and disposition from the ED.

Using descriptive statistics, we assessed 179 patients who received naloxone in the pre-hospital setting prior to arrival at the ED with 34 patients excluded due to non-opioid related indications. Of the 145 patients included, the average age was 48 years, 81% male, and 52% black. Of the 145 patients who received pre-hospital naloxone, 67% were intramuscular and an average dose of 2 mg. Upon arrival at the ED, 24 (17%) patients required additional naloxone, 15 patients (10%) required hospital admission, and 23 (16%) patients left against medical advice. Of the 130 patients discharged from the ED, 20 (15%) patients received buprenorphine or methadone, 22 (17%) patients were enrolled in or provided resources for MAT, 11 (9%) patients were offered resources but declined, and 80 (62%) patients were discharged with take-home naloxone kits. Of the 15 patients admitted, 3 (20%) patients received buprenorphine or methadone, 6 (40%) patients were enrolled in or provided resources for MAT, and 4 (27%) patients were discharged with take-home naloxone kits.

The study indicates the need for improved provision of take-home naloxone kits and referrals for MAT. Investigation may be warranted at other hospitals to ensure policies for patients with suspected opiate overdose include proper care and opioid reversal options at discharge.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Therapeutic Management of Hypertensive Urgency in the Emergency Department

Author: Sarah Schriewer

Primary Preceptor: James Reimer

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

Abstract:

Hypertensive crisis, an acute complication of hypertension where blood pressure exceeds 180/120 mmHg, is classified as urgency, emergency, or pseudo-crisis. Challenges exist when differentiating hypertensive emergency from urgency, therefore the initial assessment is essential in determining treatment recommendations. The term “urgency” may be misconstrued, resulting in a terminology change towards “severe-range asymptomatic hypertension.” Patients presenting with hypertensive urgency should ideally receive outpatient follow-up for titration of oral medications, but frequently receive intravenous therapies that could cause additional harms.

At HSHS St. Elizabeth’s Hospital, intravenous antihypertensives are often ordered in the emergency department for treating hypertensive crises. The purpose of this study is to examine emergency department visits and subsequent treatment of hypertensive urgency at a community teaching hospital. This research was reviewed and exempt by the institutional review board. One project objective involves highlighting opportunities to reduce unnecessary hospital admissions and subsequent costs while ensuring optimal patient care. A single center, retrospective chart review will be conducted in adult patients aged 18-85 years admitted to HSHS St. Elizabeth’s Hospital from June 1, 2023 through December 1, 2023 who have a novel diagnosis of hypertensive urgency, defined by ICD-10 code I16.0. Patients will be identified using reports generated from the electronic health record and excluded if meeting criteria for hypertensive emergency including presentation with aortic dissection or aneurysm, ischemic or hemorrhagic stroke, acute heart failure, acute renal failure, acute coronary syndrome, pheochromocytoma, or pre-eclampsia. The primary outcome is to evaluate the utilization of intravenous versus oral medication treatment for hypertensive urgency. Secondary outcomes include length of stay and blood pressure readings prior to and following medication administration. The study will provide a basis for future practice on managing hypertensive urgency in the emergency department in congruence with evidence-based practice recommendations. Results and conclusions are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: A Retrospective Analysis of Anti-Diabetic Medication Regimens in Kidney and Heart Transplant Patients

Author: Gabbie Senica

Primary Preceptor: Danny Mai

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

Abstract:

Immunosuppressive medication regimens are a mainstay of therapy for patients undergoing kidney or heart transplants. These therapies are associated with the development of metabolic abnormalities that can lead to post-transplant diabetes mellitus. This condition is a risk factor for graft failure and patient mortality. There is insufficient guidance in monitoring and managing post-transplant diabetes mellitus in the transplant population. This study will evaluate how post-transplant diabetes mellitus is monitored and managed in our transplant population. The design of this study is a single center, retrospective chart review using medical records at OSF Saint Francis Medical Center from January 1, 2019, through August 1, 2023. Patients were identified for inclusion in this study based on diagnostic codes for kidney and heart transplants. Once patients were identified, a variety of data was collected and analyzed including hemoglobin A1c and home medication lists. Patients 18 years or older that had a kidney or heart transplant at OSF Saint Francis Medical Center were included in this study. Patients were excluded if they received a kidney or heart transplant outside of OSF Saint Francis Medical Center or were deceased at 6-months post-transplant. The primary outcome was to evaluate whether anti-diabetic medication regimens were escalated in patients who did not meet the goal hemoglobin A1c of < 8% at 6-months post-transplant. The secondary outcomes assessed include percentage of patients without a diagnosis of diabetes at the time of transplant with a hemoglobin A1c ≥ 6.5% at 6-months post-transplant, change in hemoglobin A1c from baseline to 6- and 12-months post-transplant, types of anti-diabetic medication regimens started, transplant failure at 6- and 12-months, and patient death at 6- and 12-months. Results and conclusion pending further data collection and evaluation.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of an electronic, web-based, cloud technology platform for onboarding pharmacy and technician students completing rotations at multistate health system locations

Author: Anjali Shah

Primary Preceptor: Linda Tung

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Anjali J. Shah

PGY1 Pharmacy Practice Resident

Advocate Illinois Masonic Medical Center

Title: Implementation of an electronic, web-based, cloud technology platform for onboarding pharmacy and technician students completing rotations at multistate health system locations

Purpose: Advocate Health Midwest Region (AH-MWR) offers many pharmacy students and pharmacy technician students various opportunities for hands-on clinical experiences, as a part of their curriculum. These experiences during rotations allow for students to better understand the daily tasks, roles, and responsibilities of licensed pharmacists and pharmacy technicians. To ensure students have a seamless start to their rotations, training modules, onboarding requirements, forms and documentation must be completed and submitted promptly before their first day. The Central Student Coordination (CSC) team within AH-MWR coordinates the requirements for these rotations. Implementation of an electronic, web-based technology platform will allow the Central Student Coordination (CSC) team to efficiently coordinate rotations for each student throughout the Midwest region.

Methods: The primary objective of this project is to implement an electronic, web-based, cloud technology platform as a transition from a manual tracking process for the Central Student Coordination team. This transition will ensure all student requirements are met and appropriate web access is activated before rotations start. Post-implementation, analysis will be done to assess the efficiency of

the new process for the Central Student Coordination (CSC) team. Data will be collected through questionnaires and the collection will take place from September 2023 to March 2024. Data will be compared between the previous manual process and the new online, electronic process.

Results: Implementation and data collection is pending.

Conclusion: Pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Standardization of Pharmacist Monitoring System Criteria in a Community Health System

Author: Keval Shah

Primary Preceptor: Victoria Noonkester

Institution: NorthShore University HealthSystem

Abstract:

Title: Standardization of Pharmacist Monitoring System Criteria in a Community Health System

Authors: Keval Shah, PharmD, Victoria Noonkester, PharmD

Purpose:

In acute care settings, pharmacists commonly participate in leading medication interventions, which can then help to improve patient outcomes. Clinical decision support (CDS) tools within hospital electronic health record (EHR) systems are frequently utilized to support pharmacist monitoring. These CDS tools help to facilitate pharmacist decision making in regards to making interventions by showing relevant patient data pertinent to their current medications. A recent merger has led this community health system to consolidate three distinct instances of our EHR pharmacist monitoring system into one. The purpose of this project is to examine this aspect of current pharmacy practice at three separate entities and to develop a comprehensive plan to standardize the pharmacist monitoring CDS tools within the EHR.

Methods:

This quality improvement project is exempt from Institutional Review Board approval. A literature review was performed to assess external current practices regarding pharmacist monitoring standards. The criteria utilized in pharmacist monitoring systems was collected in addition to current pharmacy practice across all locations. The criteria used by this monitoring system was cross-walked, and essential criteria and inconsistencies between institutions were evaluated. A standardized approach was created and reviewed with a taskforce comprised of pharmacy leadership and clinicians from all sites. An integration plan will be developed for implementation.

Results: In process

Conclusion: In process

Word Count: 206/300

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing Effectiveness of Alert on Anticholinergic Medications on Changing Prescribing Patterns in Older Adults

Author: Vallari Shah

Primary Preceptor: Emily Ellsworth

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

Abstract:

Background:

Highly anticholinergic medications have an increased risk of toxicity in the elderly patient population. The most common side effects of anticholinergics agents include dry mouth, constipation, urinary retention, dizziness, confusion, blurry vision, and falls. Increased age results in reduced drug clearance, increasing the risk of toxicities due to the impaired renal and hepatic function. Cumulative exposure to anticholinergics is correlated with an increase in the risk of falls, delirium, and dementia in both younger and older patients. Electronic alert systems for drug-drug interactions, medication classes, and comorbidities are commonly utilized to alert and inform prescribers when making medication decisions. The implementation of an electronic alert was designed to influence prescribing patterns of highly anticholinergic agents in patients over 65 years old at the Edward Hines, Jr. VA Hospital in 2016.

Purpose:

To assess the effectiveness of an electronic alert of highly anticholinergic agents in patients >/= 65 years old in changing prescribing patterns. Effectiveness is defined as either stopping or changing agents at a rate of >/=10%.

Methods:

A list of patients who met the following inclusion criteria was generated from the electronic medical record: >/=65 years old, outpatient, and being ordered a highly anticholinergic medication from December 6, 2022 to December 5, 2023. Patients enrolled in hospice or palliative care were excluded from this study. It was determined that 139 patients were needed to power this study, utilizing one-sample binomial test for population approximation, calculated with R for statistical computing. Rates at which the prescription orders were accepted, abandoned, cancelled, or signed was collected and analyzed. The

anticholinergic medication and dose ordered was also evaluated. Finally, the patients' anticholinergic burden score, before and after the alert was triggered, was calculated.

Results/Conclusion:

Pending results and conclusion.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Development of a systematic approach to conducting successful pharmacy residency research

Author: Mariana Silva

Primary Preceptor: Jodi Fugate

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Purpose: ASHP-accredited post graduate pharmacy residency programs must provide opportunities for residents to advance pharmacy practice and improve patient care. This can be accomplished by conducting a quality improvement or research project. Pharmacy residents entering the program at Advocate Illinois Masonic Medical Center (AIMMC), part of Advocate Heath (AH), have minimal formal research training. Preceptors also have varying degrees of research experience. Successful completion of a research project requires a resident to have strong project management skills and knowledge of research design, data collection, statistical analysis, and manuscript writing. There are many resources available within AH, but there is no structured process to guide utilization or understanding. This project aims to create a formalized toolkit that pharmacy residents and preceptors can use to facilitate development of research skills.

Methods: Past AIMMC residents and current AH preceptors were surveyed to gather information regarding their experience conducting research within the organization. Additionally, a thorough review of resources available through AH was conducted to determine if the information was comprehensive. After gaps were identified, supplemental material was obtained from external sources. Then a toolkit was created containing links to relevant resources and a suggested timeline for completion. AH residency program directors and preceptors were invited to participate in an open forum to obtain feedback regarding usability and content of the toolkit and to solicit interest in incorporating it into their program's major project learning experience. The final toolkit will be presented to the system residency advisory committee for approval. It will then be shared with all AH residency program directors for optional inclusion into their research training process.

Results and Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimization of Pharmacy Inventory within a Community Health System

Author: Melissa Smith

Primary Preceptor: Lynn Boecler

Institution: NorthShore University HealthSystem

Abstract:

Purpose: In 2021, nonfederal and federal hospitals spent a total of $42.2 billion on prescription drugs accounting for a large overall cost to the hospital system. Non-moving inventory defined as inventory bought and expired with little to no use can occupy limited shelf space within a pharmacy. Additionally, inability to identify non-moving inventory can increase costs to a health care system, as these items will continue to expire and be re-ordered in an endless cycle. Identifying non-moving inventory is essential to encourage drug waste reduction and cost control within a pharmacy. The overall purpose of this project is to identify non-moving inventory to consolidate, reduce, or eliminate drug product.

Methods: This quality improvement initiative was exempt from Institutional Review Board approval. A retrospective analysis occurred within a three-year period from 2021 to 2023, which assessed inpatient inventory at four hospitals within a community health system. Inclusion criteria involved medication inventory within an inpatient pharmacy. Data was analyzed from multiple sources and all aspects of this initiative were reviewed with stakeholders to develop a multimodal inventory management approach. The primary objective was development of a reproducible strategy to optimize medication inventory management utilizing key performance indicators such as but not limited to medication purchases, utilization, returns, and waste.

Results: Pending

Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Hypophosphatemia Reduction in Patients Receiving Phosphate-Containing Versus Phosphate-Free Solution for Continuous Renal Replacement Therapy

Author: Paulina Sobus

Primary Preceptor: Kathleen Koopman

Institution: Alexian Brothers Medical Center

Abstract:

Patients undergoing continuous renal replacement therapy (CRRT) face increased risks associated with CRRT-induced hypophosphatemia, such as prolonged stays in the intensive care unit (ICU) and hospital, multiorgan failure, and prolonged respiratory distress. Addressing hypophosphatemia is crucial to mitigate these complications. Previous research has shown that CRRT solutions containing phosphate, as opposed to phosphate-free alternatives, are associated with lower rates of hypophosphatemia, shorter hospital and ICU stays, and reduced need for ventilator support. This study aims to determine if the use of solutions containing phosphate, rather than phosphate-free solutions, can decrease the incidence of hypophosphatemia and identify any significant differences between the two solutions.

A retrospective, observational study was conducted at Alexian Brothers Medical Center in Elk Grove Village, Illinois. Eligible participants were identified through the Ministry Operation-System Analytics Information Center (MOSAIC) and the Clinical Data Warehouse (CLDW). Inclusion criteria require participants to be 18 years or older and to have undergone CRRT for at least 24 consecutive hours between January 2022 and January 2024. Exclusions pertain to patients who have received mechanical circulatory support (VAD, VA-ECMO, Impella), been exposed to both phosphate-containing and phosphate-free dialysate solutions, are pregnant, or are incarcerated. Primary outcomes include hypophosphatemia incidence (defined as phosphate levels <2.5 mg/dL), daily average phosphate replacement during CRRT (measured in mmol), median phosphate levels during CRRT (expressed in mg/mL), and severe hypophosphatemia incidence (defined as phosphate levels <1 mg/dL). Secondary outcomes involve monitoring days on the ventilator, ICU and hospital length of stay, and in-hospital mortality. Data collection includes patient demographics, baseline comorbidities, renal function upon admission, CRRT treatment modality, ICU admitting diagnosis, CRRT fluid removal per 24 hours, CRRT duration, and dialysis dose delivered. Although data collection is ongoing, preliminary results suggest a lower incidence of hypophosphatemia in the phosphate-containing group compared to the phosphate-free group.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Incidence of Ileus in Trauma Patients Receiving Gabapentin as part of an Opioid Sparing Treatment Regimen

Author: Nicklaus Sorensen

Primary Preceptor: Lina Piech

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

Abstract:

Purpose: Gabapentin is often added to multi-modal pain management regimens in patients with traumatic injuries to decrease opioid use and their associated adverse effects. Anecdotally, at our institution, a higher incidence of ileus has been observed in trauma patients receiving gabapentin as part of their opioid sparing pain management regimen. There is limited data on the incidence of this adverse effect in trauma patients. This study reviews the incidence of ileus in patients receiving gabapentin after a traumatic orthopedic injury.

Methods: This single-center, retrospective review evaluates trauma patients with orthopedic fractures admitted to Advocate Christ Medical Center from October 2020 to August 2023. Patients are identified for eligibility through the electronic medical record based on fractures including: rib, humerus, femur, pelvic, acetabulum, sacrum, and spine. Patients with the following criteria are excluded: pregnancy, death within 24 hours of admission, diagnosis of irritable bowel syndrome or colorectal cancer, abdominal procedure or appendicitis/diverticulitis within 30 days, as well as concurrent gastrointestinal infection. The primary outcome is ileus diagnosis in trauma patients who received gabapentin. Secondary outcomes include hospital length of stay, average daily dose of opioids in morphine milligram equivalents, time to diagnosis of ileus, gastrointestinal complications including obstruction, perforation, bleeding, and need for operative management. Data points collected include: age, gender, weight, comorbidities, pre-admission opioid use, mechanism of injury, route of nutrition, total gabapentin dose, renal function, vasopressor use, and magnesium supplementation.

Summary of results: This study is Institutional Review Board approved and results are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Smart Pump Drug Library Standardization

Author: Benjamin Stevens

Primary Preceptor: Lynn Boecler

Institution: NorthShore University HealthSystem

Abstract:

Smart infusion pumps are commonly utilized in hospitals throughout the United States with the intention of minimizing infusion errors. Smart infusion pump technology allows for increased control and accuracy in the administration of infusion medications and provides decision support to users for programmed doses and infusion rates. These capabilities rely on the creation and maintenance of smart pump rule libraries. Smart pump libraries are specific to the medication concentrations and administration practices of a given institution. Our recently merged organization is working to standardize smart pump drug library rules across different products and different instances. This project is a quality improvement initiative and is exempt from Institutional Review Board approval. Smart pump drug libraries of a nine-hospital community health system were reviewed and compared. The initial focus included ASHP's Standardize 4 Safety initiative medications since these were most likely the same concentration and product size. Differences in programmed medication concentrations, infusion rate limitations, and dosing unit were documented. Documented differences were then presented to and discussed with a task force with a goal of standardizing the approach to creating smart pump drug library rules. When possible, a single concentration, rate limitation, and dosing unit for each medication were agreed upon for the health system. Standardization of the remaining medication rules will be implemented in the coming years.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Implementation of an Outpatient Label on Bulk Medications Upon Discharge

Author: Katarzyna Szaflarska

Primary Preceptor: Manali Szynkarek

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

Abstract:

Purpose: Throughout the United States Department of Veterans Affairs, the transition of patients from inpatient to outpatient status presents a critical challenge with the continuation of bulk medications, including but not limited to inhalers, creams, solutions, and eye drops. Despite patients being allowed to take these bulk medications home, the absence of an established process for affixing an outpatient label to partially used inpatient medications upon discharge has been identified as a significant barrier, as stipulated by the VHA Directive 1108.07 General Pharmacy Requirements. This project aims to address this issue by developing and implementing a process that ensures these bulk medications are appropriately and efficiently labeled with an outpatient label before a patient is discharged. This initiative seeks to enhance patient and nursing satisfaction, reduce hospital waste, and comply with regulatory requirements.

Methods: The approach for this project will involve collaboration with nursing staff, pharmacists, and pharmacy technicians to establish a feasible and efficient labeling process. Initially, the process will focus on a specific category of bulk medications, inhalers, on one general medicine unit for its pilot implementation. Metrics for evaluating the success of the implementation will include achieving a 50% usage of outpatient labels for inpatient bulk medications and a 50% reduction in wasted bulk medications within the first 30 days following the implementation, assessed through the sampling of 30 patients. The outpatient label will include auto-filled required fields except for the patient name, provider name, pharmacist initials, and medication name and dose, which will need to be entered prior to printing of this secondary label.

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

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Outpatient Pain Management Counseling Services and their Impact on Patient Care

Author: Jennifer Takamura

Primary Preceptor: Marlowe Djuric Kachlic

Institution: University of Illinois at Chicago College of Pharmacy

Abstract:

Statement of Purpose:

In 2022, Chicago had 1,407 opioid-related deaths. Pharmacists serve a paramount role in combating the opioid crisis due to their accessibility to the public. Pharmacists review the appropriateness of medications, identify at-risk patients for opioid use disorder, check for drug interactions, provide patient education for safe medication use and disposal, and provide naloxone under a standing order. By working with patients and removing the stigma behind opioid use, pharmacists can work to optimize therapy and recommend alternatives for pain. This study aims to determine the impact of a pharmacist's intervention in helping patients manage their pain in an outpatient pharmacy setting in an academic medical center.

Methods:

Patients on medications for pain are offered the pain management service at the pharmacy. Once the patient agrees, the visit entails assessing the type of pain and severity, identifying pain management goals, reviewing current non-pharmacological and medication pain management strategies, counseling on proper medication use of over-the-counter and prescription pain medications, and recommending non-pharmacological strategies. Patients who are on opioids are counseled on risk management and proper disposal of medications and are offered naloxone. Alternative pharmacological options are also discussed with patients if appropriate. The pharmacist will offer to discuss alternative pain medication recommendations with the patient's provider. A pain management plan will be created that includes non-pharmacological and medication recommendations. Patients are provided education on non-opioid management of chronic pain, risk management of opioids, information on safe medication disposal, and patient education on wellness strategies such as emotional well-being, nutrition, and exercise. A follow-up appointment is scheduled if the patient desires. This study will monitor changes in patient pain scale and changes in patient pain medications for patients who have follow-up, number of patient visits, naloxone access, and interventions made.

Summary of Results: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating guideline concordant inhaler prescribing for patients with COPD exacerbation

Author: Tara Tanriverdi

Primary Preceptor: Shannon McCabe

Institution: Northwestern Memorial Hospital

Abstract:

Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality worldwide. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) updated their recommendations in 2023 to simplify medication regimens and emphasize early treatment for patient survival. A notable change to medication therapy was the addition of treatment category E in place of categories C and D. Category E recommends long-acting beta-agonists (LABA) + long-acting muscarinic antagonists (LAMA) therapy for all patients with at least one hospitalization-related exacerbation, with consideration for triple therapy with an inhaled corticosteroid (ICS) if eosinophils ≥300 cells/µL. Previously, it has been shown that GOLD treatment recommendations are not consistently adhered to, resulting in overprescribing of inhaled corticosteroids. Excessive use of inhaled corticosteroid can cause unwanted side effects and unnecessary healthcare expenses. Additionally, nonadherence to guideline recommendations may increase the risk of future exacerbation and hospital admission.

The purpose of this study was to evaluate GOLD guideline concordant inhaler prescribing in patients hospitalized with chronic obstructive pulmonary disorder exacerbation at discharge from Northwestern Memorial Hospital.

This was a single-center retrospective study evaluating 48 patients hospitalized for COPD exacerbation between March 1, 2023, to November 30, 2023. The primary outcome was the rate of appropriate inhaler prescribing in patients hospitalized with COPD exacerbation at discharge.

The average patient age was 71 years old, 56.3% were male and all patients had former or current tobacco use. Prior to admission, 45.7% of patients were on triple therapy. Overall, appropriate inhaler prescribing at discharge was seen in 28 out of 48 patients (58.3%).

The majority of patients hospitalized for COPD exacerbations received GOLD guideline-concordant inhaler therapy at discharge; however, 41.7% of patients lacked appropriate discharge prescriptions. Enhancing pharmacist involvement in pharmacotherapy adjustments and transitions of care could optimize prescribing practices and improve patient outcomes.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Medication Temperature Monitoring Standarization in the Advocate Health Midwest Region

Author: Abaigeal Tarpey

Primary Preceptor: Christina Hannon

Institution: Advocate Lutheran General Hospital

Abstract:

Background: In 2023, one standardized temperature monitoring vendor was selected by the Advocate Midwest Region. A variety of temperate monitoring programs are used throughout the enterprise currently. Securities in the current program/devices at our Midwest sites are no longer supported, causing devices to frequently drop off the network. The vendor of choice has a new FDA approved temperature monitoring device that passed Advocate risk and governance review in 2023. Multiple vendors were assessed, and one was selected as the vendor best able to meet the entire organization's needs. For sites currently using the older temperature monitoring devices, they will be replaced with the new digital data logger (DDL) as budgets allow. This project aimed to assist in this transition and provide a tool kit to justify and support the conversion to the new DDL. The scope of this project encompassed hospital pharmacy, retail pharmacy, and oncology clinics temperature monitoring across Advocate Health Midwest.

Methods: This project required the coordination of stakeholders such as pharmacy operational leaders, facilities, dietary, laboratory, and the medical group. Identifying key stakeholders early was essential. A literature review took place to understand rules, regulations, and best practices surrounding medication temperature monitoring. Continually engaging stakeholders to understand and coordinate recommendations was the bulk of the project. The new policies, procedures, and toolkit derived from this collaboration were approved by the Advocate Health Midwest Region Pharmacy Leadership Council (a pharmacy operations approval committee within the formulary governance structure).

Results: A toolkit for pharmacy site leaders was developed to drive conversion/implementation of the new DDL that includes:

Project timeline

Cost breakdown

Leadership presentation content for site C-suite

Ordering guide

Policy/procedure: Medication and Vaccine Refrigerator and Freezer Storage Policy

Call tree for alarm responses

Excursion response

Standardized node settings

Troubleshooting guide

A medication stability reference

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Optimization of clinical monitoring for patients receiving therapy at the IMMC infusion clinic

Author: Neetu Thomas

Primary Preceptor: Tram Le

Institution: Advocate Illinois Masonic Medical Center

Abstract:

Purpose: The risks associated with the use of biologic response modifiers warrant baseline assessments and routine monitoring, however, standardized monitoring recommendations and practices have yet to be established. Historically, IMMC did not have routine clinical monitoring services for patients receiving medications in the outpatient Infusion Clinic. In the Spring of 2022, IMMC implemented a process for pharmacists to facilitate ordering and evaluating required laboratory tests prior to dispensing medications for administration in the Infusion Clinic. The impact of pharmacist involvement in monitoring therapy for Infusion Clinic patients, however, has not been evaluated. Since the implementation of this process, additional opportunities for improvement have been identified. The objective of this project is to optimize the lab ordering and documentation process for patients who receive therapy at the IMMC infusion clinic.

Methods: This is a retrospective, single center analysis to evaluate safety monitoring for patients receiving therapy at the IMMC infusion clinic before and after implementation of clinical pharmacy services. The primary outcome is the percentage of patients that received appropriate baseline lab monitoring prior to initiating therapy, while the secondary outcome is the percentage of patients that received appropriate follow up laboratory monitoring for continuation of therapy. A total of 100 patients receiving therapy with denosumab, infliximab, or golimumab were included in this study. Data collection will be analyzed over a pre-implementation and post-implementation period prior to and after pharmacist involvement in the infusion clinic monitoring process.

Results: Pending data collection

Conclusion: Pending data collection

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Efficacy and Safety of DOACs for Acute Portal Vein Thrombosis With and Without Cirrhosis

Author: Vsevolod Tikhomirov

Primary Preceptor: Monika Hornung

Institution: Rush University Medical Center

Abstract:

Purpose:

Portal vein thrombosis (PVT) is a rare liver disorder characterized by the formation of blood clots within the portal vein. It is common practice to initiate anticoagulation in acute PVT episodes in both cirrhotic and non-cirrhotic individuals, with the preferred agents historically being unfractionated heparin, low molecular weight heparins (LMWH), and warfarin. Since the introduction of direct oral anticoagulants (DOACs), limited evidence exists regarding their efficacy and safety in patients experiencing acute PVT episodes with and without cirrhosis. The purpose of this study is to further evaluate the rate of recurrent thrombotic and bleeding events with DOAC therapy compared to LMWH and warfarin in patients with or without cirrhosis who presented to Rush University Medical Center (RUMC) with acute PVT.

Methods:

We conducted a single-centered, retrospective, observational cohort study including adult patients ≥ 18 years of age treated with DOACs, warfarin or LMWH for an acute PVT episode at RUMC between January 1, 2018 through June 30, 2023, and were maintained on anticoagulation treatment for at least 90 days with documented follow up. The primary outcome of this study is the absolute difference of recurrent thrombotic events within 90 days of initiating therapeutic anticoagulation with DOAC, warfarin or LMWH. Secondary outcomes include the absolute difference in the incidence of major bleeding events and the absolute difference in the incidence on minor bleeding events, resolution of thrombosis, and all-cause mortality. All data will be reported using descriptive statistics to describe normally distributed data and median (interquartile range [IQR]) used for non-normal data. Normality of data will be assessed using the Shapiro-Wilk test. For nominal data, chi-squared and Fisher's Exact test will be used to assess differences among study participants. For continuous data, a Student's t-test and Mann-Whitney U Test will be used for data analysis.

Results:

Pending

Conclusion:

Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Comparison of different antifactor Xa-guided unfractionated heparin protocols used within a regional health system

Author: Sarah Toppins

Primary Preceptor: Ashley Unger

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

Abstract:

Purpose: The purpose of this study is to compare the efficacy and safety of the different cardiac and medical heparin nomograms established by HSHS St. Elizabeth's Hospital and HSHS St. John's Hospital. The study findings will support establishing a standardized cardiac and medical heparin order set for the health system's Illinois locations.

Methods: A multi-center, retrospective chart review conducted on adult patients treated with intravenous unfractionated heparin for at least 24 hours and 2 or more anti-Xa levels collected. Patients will be identified by reports generated from the electronic health record between June 1, 2023 and November 30, 2023. Subjects will be stratified based on the type of heparin protocol used (medical vs. cardiac). Patients will be excluded if the time for any anti-Xa lab significantly deviated from the protocol ordered, they had severe thrombocytopenia at baseline, or other anticoagulants were used prior to or during UFH treatment. The primary endpoint is percent of patients within therapeutic range at 24 hours after heparin initiation. Secondary endpoints include mean duration in therapeutic range, percent time spent in subtherapeutic or supratherapeutic range, and number of major bleeding events defined by ISTH criteria. SPSS software will be used to perform statistical analysis.

Results: pending

Conclusions: pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Wellness Waves: Surfing for Resident Wellbeing Resources

Author: Hoang Tran

Primary Preceptor: Hina Patel

Institution: NorthShore University HealthSystem

Abstract:

Published studies highlight prevalent issues and challenges in various healthcare-related residency training programs, including perceived workload pressure, stress levels, and burnout, along with limited wellness initiatives within these programs. Awareness related to wellbeing and resources was introduced in early 2000s, with reports describing specific wellbeing concerns in residency training programs first published in 2018. In 2019, Swanson and colleagues advocated for an enhancement in wellness programs and resources to improve pharmacy resident well-being, promote resilience, address burnout, and transform the culture of postgraduate training. To deliver effective wellness support, this initiative will develop a comprehensive assessment tool to identify what pharmacy residents desire and utilize during training. This project is a quality improvement initiative and is exempt from Institutional Review Board approval. Wellbeing resources at a nine-hospital community health system were systematically compiled. Resources were classified into distinct wellbeing categories, including general informational resources, relaxation tools, counseling/therapy, physical health, and financial support. A survey assessed pharmacy residents' desires for wellness resources, the likeliness to utilize the resources, and perceived barriers. Participants utilized a Likert scale to rate survey statements representing their experiences. Survey responses triggered real-time personalized wellbeing resources to display, capturing the respondents' attention at the time. Responses were collected anonymously to promote authenticity and safeguard participants' privacy. The project had multiple phases. The initial phase surveyed past pharmacy residents to assess validity and solicited post-training reflections. The second phase surveyed eighteen current pharmacy residents from five programs within the same health system. Verbal and email reminders were utilized to encourage participation. The survey findings will be employed to integrate desired resources into the training program with the ability to personalize for individual residents. A subsequent survey will be distributed at a later stage to evaluate resource usage and consistency of desired resources. Results and conclusions are pending.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Heparin Monitoring: An Anti-factor Xa approach

Author: Alison Urbanski

Primary Preceptor: Carol Heunisch

Institution: NorthShore University HealthSystem

Abstract:

Statement of the purpose:

Historically, unfractionated heparin (UFH) management has been driven by activated partial thromboplastin time (aPTT) levels, however advancements in research and technology show monitoring with anti-factor Xa levels to be more efficacious. This is because anti-factor Xa heparin assays directly measure heparin's activity, whereas aPTT levels reflect the function of the patient's coagulation cascade. Benefits of anti-Xa monitoring include predictable dose-response curves, a shorter time to therapeutic anticoagulation, and a decrease in dosing adjustments and blood draws. At this community health system, intravenous UFH is monitored using one of nine protocols and subsequent aPTT values. The purpose of this project is to implement a monitoring strategy for continuous UFH drips using anti-Xa, instead of aPTT, with a redesign of protocols based on clinical indication for the infusion and therapeutic goal. (129 words)

Statements of Methods Used:

The primary objective was to transition this community health system to an anti-Xa level UFH monitoring approach. A literature search was conducted to collect data that supports this health system-wide transition. The redesigned protocols were adapted to existing anti-Xa monitoring protocols with low and high anti-Xa target ranges. These protocols were presented to various stakeholders at this health system, including cardiology, hematology, neurology, surgery, neurosurgery, medication safety, and nursing. Once multidisciplinary stakeholder groups were in agreement, the proposed changes were presented to the Pharmacy and Therapeutics committee meeting for approval. Once approved, the changes were made in the electronic health record and education was provided. (105 words)

Summary of results to support conclusion: Pending

Summary of the conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: The impact of urine cultures processed in a Veterans Affairs (VA) associated laboratory compared to a non-VA associated laboratory on the treatment of inpatient urinary tract infections.

Author: Maryheather Walsh

Primary Preceptor: Zacahry Rosenfeldt

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

Abstract:

Purpose: On April 24, 2023, the Captain James A. Lovell Federal Health Center (FHCC) switched from sending urine cultures to a non-VA associated laboratory to sending urine cultures to a laboratory at the Milwaukee VA Healthcare System. Evaluation of this change is needed to ensure that there has not been a negative impact on patient care. To our knowledge, there are no previous studies having assessed outcomes associated with the use of local culture results compared third party culture results. The goal of this study is to assess the efficacy of this change and examine any potential need for further changes.

Methods: This is a retrospective cohort study analyzing patient outcomes from urine culture labs sent to a private laboratory compared to urine cultures sent to a VA associated laboratory for the purpose of assessing inpatient treatment of urinary tract infections. Data will be collected utilizing Computerized Patient Records Systems (CPRS) to collect data spanning two different time periods. Patients in Group A will include patients who were treated for a urinary tract infection at FHCC between May 2022-October 2022. Patients in Group B will include patients who were treated for a urinary tract infection at FHCC between May 2023-October 2023. The primary outcome analyzes the average duration of antibiotic therapy while secondary outcomes include duration of IV antibiotic therapy compared to oral antibiotic therapy, culture turn around time, broad spectrum antibiotic usage, and length of stay. Descriptive statistics will be utilized to analyze results collected.

Results: Results not available, research still in progress.

Conclusion: Conclusion not available, research still in progress.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Recombinant Factor VIIa (NovoSeven) vs. Prothrombin Complex Concentrate (KCentra, FEIBA) for Refractory Bleeding in Cardiovascular Surgery Patients

Author: Evelyn Wang

Primary Preceptor: Bryan Menich

Institution: Rush University Medical Center

Abstract:

Recombinant factor VIIa (NovoSeven®,rFVIIa) and Prothrombin complex concentrate (KCentra®, FEIBA®, PCC) are blood products that have been historically used to help achieve hemostasis in patients with significant bleeding during cardiothoracic surgery procedures. Previous studies have shown that patients who receive PCC require less blood products and have less chest tube output compared to those who receive rFVIIa, indicating more successful hemostasis. More recent studies suggest a potential trend towards mortality benefit in patients who receive PCC compared to rFVIIa. Due to the increasing evidence favoring PCC in this patient population, the formal factor pathway for refractory bleeding developed at Rush University Medical Center (RUMC) removed rFVIIa and switched to PCC administration for all cardiovascular surgery cases in April of 2020. The purpose of this study is to assess the overall impacts to patients at RUMC since switching from rFVIIa to PCC by evaluating patient outcomes and financial impact. . Data will be obtained through a retrospective chart review for cardiovascular surgery patients who received either rFVIIa or PCC. Patients with underlying prothrombic/anti-thrombotic disorders prior to intervention, patients receiving both rFVIIa and PCC, and those who were pregnant were excluded. The primary outcome is the number of products (red blood cells, cryoprecipitate, fresh frozen plasma, platelets, cell saver) transfused in units post-factor administration. Secondary outcomes include: frequency of failure to close chest due to coagulopathy; rates of re-operation due to bleeding; chest tube output post-factor administration at 2, 6, and 24 hours; hospital and 30-day mortality; incidence of acute kidney injury; and number of thromboembolic events.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pharmacy Resident

Author: Marisol Wences

Primary Preceptor: Thomas Bernier

Institution: Rush University Medical Center

Abstract:

Guideline-directed medical therapy (GDMT) is indicated for patients with stage C heart failure (HF) with reduced ejection fraction of ≤40%, (HFrEF). Despite clinical evidence and guideline recommendations supporting both initiation and titration of GDMT, registry data shows that patients with HFrEF do not receive optimal GDMT at recommended doses. Pharmacist involvement in the care of these patients has been associated with reductions in hospitalizations, increased GDMT utilization, and shorter time to target dose achievement. This project aims to evaluate the effectiveness of a GDMT scoring tool to improve initiation and up-titration of quadruple therapy in patients with HFrEF.

This single-center, retrospective, observational study included 89 adults with American College of Cardiology/American Heart Association (ACC/AHA) Stage C, and New York Heart Association (NYHA) Class II-IV HFrEF. Patients included had a recent hospitalization for HFrEF and outpatient cardiology follow-up at Rush University Medical Center between September 2022 and September 2023. Patients with estimated glomerular filtration rate <30 mL/min, systolic blood pressure <90 mmHg, potassium >5.5 mEq/L or heart rate <50 beats per minute were excluded.

The primary outcome will evaluate the percentage of patients on angiotensin receptor-neprilysin inhibitor (ARNI), beta-blocker, mineralocorticoid receptor antagonist (MRA), and sodium-glucose cotransporter 2 (SGLT2) inhibitor at 3 months. Secondary outcomes will include HF readmission rates and cardiovascular mortality. All outcomes will be assessed at discharge, 30 and 90 days. The electronic medical record will be used to collect past medical and refill history, vitals, laboratory results, in-patient GDMT initiation and up titration, and out-patient clinic follow ups. Data will be analyzed using descriptive statistics and chi-squared, Fisher's exact, Student's t, and Mann-Whitney U tests to compare groups of patients. We hypothesize a statistically significant increase in the primary outcome favoring patients referred to the pharmacist-led + inter-professional HF clinic.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Pushed for Time: Time from Order Verification to Administration of IV Piggy-Back versus IV Push Levetiracetam

Author: Hannah Wieland

Primary Preceptor: Matthew Smith

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

Abstract:

Purpose: Many neurological conditions require urgent treatment with levetiracetam. Previous studies have proven both IV piggy-back (IVPB) and IV push (IVP) levetiracetam are safe and effective for critical neurological situations. In February 2023, our hospital began utilizing IVP levetiracetam. The purpose of this study is to compare average time to administration of one-time doses of IVPB levetiracetam to IVP levetiracetam.

Methods: This is a single-center, retrospective chart review of adults who received either IVPB (April 2021 – September 2021) or IVP levetiracetam (April 2023 – September 2023) at HSHS St. John's Hospital. Patients were identified from electronic medical record reports and screened through manual chart review. Patients were excluded if they received IVP levetiracetam during the washout period, were on maintenance levetiracetam therapy, or were bradycardic or hypotensive at baseline. The primary objective of this study was to determine average time to administration of one-time doses of IVPB versus IVP levetiracetam. Secondary objectives included cost savings of IVPB versus IVP levetiracetam, bradycardia or hypotension within two hours of administration, and a subgroup analysis comparing admitted patients to emergency room patients. Continuous data was evaluated using student t-test and categorical data was evaluated using Chi-square test.

Results: A total of 513 patients were included in the analysis after screening 1628 patients for exclusion criteria. The average time from verification to administration of IVP levetiracetam was 25 minutes compared to 54 minutes in the IVPB group ($P < 0.001$). Only 0.6% (1/154) in the IVPB group experienced bradycardia versus 0% (0/108) in the IVP group ($P = 0.704$). A total of 3.9% (6/154) in the IVPB group experienced hypotension versus 3.9% (3/108) in the IVP group ($P = 0.239$). Cost analysis results are pending.

Conclusion: IVP levetiracetam provides significantly faster administration times for patients requiring urgent treatment and should be considered over IVPB levetiracetam.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Taste of Our Own Medicine: The Impact of Inappropriate Broad-Spectrum Antibiotic Use in Patients Hospitalized with Community-Acquired Pneumonia

Author: Victoria Wilson

Primary Preceptor: Bronagh Keane

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

Abstract:

Purpose: The 2019 Infectious Diseases Society of America (IDSA) guidelines recognize two clinical classifications for describing community-acquired pneumonia (CAP): nonsevere and severe. The guidelines provide recommendations for empiric antibiotic treatment based on the clinical presentation of CAP. The objective of this study is to assess HSHS St. John's Hospital's empiric antibiotic prescribing adherence to the 2019 IDSA CAP guidelines and its impact on patient outcomes.

Methods: This retrospective study includes patients 18 years of age and older diagnosed with CAP between October 1st, 2022 – April 30th, 2023. Patients are excluded if diagnosed with hospital or ventilator-associated pneumonia (HAP/VAP), concomitant infection, COVID-19, pregnant, or were transferred from another facility. Patients are numbered, randomized, and selected in batches of 50 each round until sample size has been reached. All data is recorded without patient identifiers to maintain confidentiality. The primary outcome assesses 30-day all-cause mortality in patients treated with inappropriate empiric antibiotics per IDSA guidelines. The secondary outcomes assess guideline adherence rates, 30-day readmission, secondary Clostridioides difficile infections, length of stay, and prescriber's use of the current CAP order set.

Results: So far, 582 patients have been assessed and 150 patients met inclusion criteria in the preliminary results. Thirty-seven patients had inappropriate empiric antibiotics started. Of the 113 patients with appropriate empiric antibiotics, 10 were escalated inappropriately once admitted.

Conclusion: Pending final results, conclusion will be presented at the 2024 ILPRC meeting.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluating the Perceived Impact of Drug Shortages on Patient Care by Patients in a Community-based Pharmacy Chain

Author: Luke Witkowski

Primary Preceptor: Christina Cross

Institution: Jewel – Osco Pharmacies

Abstract:

Project Title:

Evaluating the Perceived Impact of Drug Shortages on Patient Care by Patients in a Community-based Pharmacy Chain

Purpose:

The purpose of this survey-based study is to determine the percentage of patients who have been negatively affected by a drug shortage. The survey includes questions assessing the clinical, financial, and emotional impact of drug shortages.

Methods:

This is a multi-center, survey-based study. Participants for this study will include patients who fill prescriptions at stores within Illinois locations of Jewel-Osco Pharmacy. Patients also must currently be taking and have a fill history that includes a GLP-1 receptor agonist or stimulant. All patients who approach the pharmacy counter will be given the QR code by the pharmacy staff, which links to the survey for the patient to complete if they so choose. If a patient is unable to utilize the QR code provided, a paper copy of the survey will be available for completion. Patients who qualify will be asked a series of questions regarding the clinical, emotional, and economic hardships they may have faced because of their medication being placed on a backorder. Questions will require a response of “yes” or “no,” or will require the participant to rank the significance of the financial, clinical, and emotional impact they experienced on a scale of 1 to 3 throughout a drug shortage.

Results/Conclusions:

From the conclusions of this research, we aim to increase awareness of the impacts drug shortages can have on patient care to community pharmacists. By drawing more attention to the impacts that come with a drug shortage, community pharmacists will be more inclined to streamline the current processes in place to help patients navigate a drug shortage.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Prescribing Patterns of Antibiotics in an Academic Medical Center Internal Medicine Clinic

Author: Brady Woods

Primary Preceptor: Michael Dickens

Institution: Northwestern Memorial Hospital

Abstract:

Purpose:

The purpose of this study was to identify needs for antimicrobial stewardship resources within a downtown Chicago internal medicine clinic based on prescribing habits for cystitis, community-acquired pneumonia, and acute sinusitis.

Methods:

A retrospective descriptive assessment of antimicrobial prescribing practice within the clinic was conducted through chart review. Outpatient antibiotic prescriptions from a prespecified list of agents written between March to June of 2023 for cystitis, community-acquired pneumonia, and acute sinusitis were compared to current Infectious Disease Society of America (IDSA) recommendations for treatment. Each prescription was reviewed for appropriateness based on indication, drug choice, dose, and duration of therapy. Patient characteristics such as labs and symptoms, C. difficile PCR+/Toxin+ within 90 days of the antibiotic prescription, and ED or clinic return visits for the same primary problem within 30 days were also assessed.

Results:

This study included 166 antibiotic prescriptions written for 149 patients. Of these prescriptions, 67% of these prescriptions were inappropriately prescribed to the patient due to variations in indication, drug, dose, or duration from guideline recommendations. Duration (33%) and indication (34%) were inappropriate most frequently on prescriptions while drug (16%) and dose (7%) were appropriately selected by providers. Prescriptions with one deviation (47%) from guideline recommendations

occurred most frequently, followed by two deviations (18%) and three deviations (2.4%). Amongst the secondary outcomes assessed, 21% of antibiotic prescriptions lead to return visits to a healthcare setting. No patients returned with a C. difficile (+) PCR+/Toxin+ within 90 days of being prescribed antibiotics.

Conclusion:

In conclusion, a significant percentage of antibiotic prescriptions deviated from IDSA guideline recommendations when considering indications, drug choice, dose, and duration of therapy. Opportunities exist for targeted interventions to improve antimicrobial stewardship in the outpatient setting.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Evaluation of Antibiotic Management for Pediatric Patients with a Positive Sepsis Screen

Author: Jessica Young

Primary Preceptor: Jessica Miller

Institution: Advocate Lutheran General Hospital

Abstract:

Title: Evaluation of Antibiotic Management for Pediatric Patients with a Positive Sepsis Screen

Authors: Jessica Young, PharmD, Jessica Miller, PharmD, BCIDP, and Karen Caylor, PharmD, BCPS

Purpose: Utilization of sepsis screening tools are essential for early identification of sepsis and timely administration of antibiotics. At our institution, a sepsis screening tool based on vital signs is utilized to identify pediatric patients with sepsis. For patients with a positive sepsis screen, a huddle is performed amongst the healthcare team to determine sepsis stratification and further treatment including decisions related to antibiotic management. Empiric broad-spectrum antibiotics are recommended to be administered as soon as possible when sepsis is identified. However, appropriate utilization of antibiotics is important to reduce unintended consequences such as adverse events and development of antibiotic resistance while still maintaining patient outcomes. The purpose of this project is to evaluate antibiotic management for patients with a positive sepsis huddle within Advocate Children's Hospital.

Methods: A retrospective review of Emergency Department and admitted pediatric patients with a positive sepsis huddle within Advocate Children's Hospital between April 2023 and December 2023 was performed. Patients in the pediatric and neonatal intensive care units with a positive sepsis screen were excluded. Patients were further analyzed based on sepsis stratification and patient location. The primary objective of this study was to describe antibiotic utilization at the time of the positive sepsis huddle. Secondary objectives included appropriateness of antibiotics utilized, duration of antibiotic therapy, final diagnosis, and utilization of the pediatric sepsis order set.

Results: Pending

Conclusion: Pending

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Early vs. Late Anticoagulation in Acute Ischemic Stroke for Non-Atrial Fibrillation Indications

Author: Ming Zhang

Primary Preceptor: Nicole Leshko

Institution: Northwestern Memorial Hospital

Abstract:

Persons who present with acute ischemic stroke (AIS) are at risk of both recurrent ischemic events and hemorrhagic transformation of infarcted brain tissue. In persons receiving anticoagulation for non-valvular atrial fibrillation (AF), a growing body of evidence suggests that early resumption of therapeutic anticoagulation after AIS may decrease ischemic risk without increasing hemorrhagic risk in select patients. However, literature regarding resumption of anticoagulation for indications other than AF is limited; making it difficult to assess the appropriate timing of therapeutic anticoagulation in these patient populations.

The purpose of this study is to assess outcomes of early therapeutic anticoagulation (within ≤7 days of index ischemic stroke) vs. late anticoagulation (>7 days) in AIS, for indications other than AF. This retrospective review will include adult patients diagnosed with AIS, admitted at Northwestern Memorial Hospital between 01/01/2018-01/01/2023. Patients will be excluded if their only indication for therapeutic anticoagulation was AF, their indication for anticoagulation was for a ventricular assist device, or if they have a contraindication to anticoagulation. Data will be collected via chart review of the electronic medical record.

This study will assess a primary composite outcome of major bleeding events while on therapeutic anticoagulation, defined as intracranial hemorrhage or major extracranial bleeding within 30 days of index event. Secondary outcomes, assessed at 30 days of the index event unless otherwise indicated, will include individual components of the primary outcome, time to first major bleeding event, clinically relevant non-major bleeding and time to first non-major bleeding event, occurrence of systemic embolism and time to first thrombotic event, all-cause mortality, and modified Rankin Scale at 90 days.

These findings will inform clinicians as to the benefits and risks of early vs. late post-stroke anticoagulation for indications other than AF, helping to guide future clinical decision-making in patients presenting with AIS.

2024 Illinois Pharmacy Resident Conference

Presentation Abstracts

Title: Assessing Staff Competency and Compliance with United States Pharmacopeia Updates for Chapters 795, 797, 800

Author: Mikal Zuljevic

Primary Preceptor: Connie Ku

Institution: Swedish Hospital part of NorthShore

Abstract:

Purpose: Updates to the United States Pharmacopeia (USP) chapters 797, 797, and 800 went into effect on November 1, 2023. The purpose of this study was to revise USP related policies and procedures, ensure compliance with required USP record keeping, and provide staff education regarding the revised USP 795, 797, 800 Chapter updates.

Methods: A single-center cohort study was conducted on hospital staff that evaluated competency and comfort-level scores before and after an in-service was administered regarding USP updates. Pharmacists, pharmacy technicians, nurses, transport personnel, and environmental services (EVS) staff were included in the study. The in-service involved a verbal presentation accompanied by a handout. An interactive in-service was also conducted with available pharmacy staff. In-services, handouts, and competencies were tailored to the department being studied. Comfort level with USP policies was assessed using a 5-point Likert scale. A retrospective analysis took place from July 2023 to October 2023 and a prospective analysis is taking place from December 2023 to March 2024 to evaluate compliance with USP required cleaning and temperature log record keeping before and after the in-services.

Results: There were 34 pharmacy staff members, 66 nurses, eight transport staff, and one EVS staff member included in the study. Average assessment scores increased by 61% among all pharmacy staff ($p<0.001$), 22% among nurses ($p<0.001$), and 55% between both transport and EVS staff ($p<0.001$). Average comfort level among pharmacy staff increased by 29% ($p<0.001$), 40% among nurses ($p<0.001$), and 65% among transport and EVS staff ($p<0.001$). Pharmacy staff that attended the interactive in-service had a 0.5% higher average assessment score ($p=0.92$).

Conclusion: There was a significant difference in post-in-service competency scores and USP policy and procedure comfort levels for pharmacy and nursing staff. Prospective data collection is ongoing and results will be presented at ILPRC.