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Category: Original

Title: Evaluation of an adult inpatient sotalol initiation order-set within a large health-system

Purpose: Package inserts (PIs) for sotalol products recommend initiating sotalol under heart rhythm monitoring, starting at a dose of 80 mg once or twice daily (depending on renal function), and waiting at least three days between dose escalations. Our health-system created a standardized sotalol initiation order-set. It includes options for more rapid dose up-titration or higher initial dosing, as well as a procedure for electrocardiographic monitoring. To our knowledge, no studies have evaluated inpatient sotalol dosing protocols that differ from the recommendations of the PIs. The purpose of this project is to evaluate inpatient sotalol initiation within the health-system after the implementation of the order-set.

Methods: Data will be gathered through retrospective review of inpatient medical records for patients who were started on sotalol therapy in the health-system after the implementation of the Sotalol Initiation Order-set. The data collection period will be from January 2016 to March 2017. Inpatient records will be limited to those who were started on sotalol using the order-set. Inpatient records for those who were on sotalol prior to admission will be excluded. The primary objective is to evaluate the length of stay for inpatients initiated on sotalol. Secondary outcomes will include therapy discontinuation during protocol, adverse reactions (Torsade de Pointes, QTc prolongation, new ventricular tachycardia, bradycardia, hypotension) and protocol compliance. Data collection forms will not contain Protected Health Information and will be kept confidentially. IRB exemption has been obtained for this project.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Stacy K. Cassat, MS, PharmD

Organization: Saint Luke's Hospital of Kansas City

Authors: Stacy K. Cassat, MS, PharmD – University of Kansas, PGY1 Pharmacy Resident, Saint Luke's Hospital of Kansas City; Charles Hayes, PharmD – Creighton University, Pharmacist III, Saint Luke's Hospital of Kansas City; Sana Grover, MBBS – Pt. B. D Sharma, Institute of Medical Sciences, Cardiac Arrhythmia Research Fellow, Saint Luke's Hospital of Kansas City; Sanjaya K. Gupta, MD – St. Louis University, Professor of Medicine, Director of Quality for Cardiac Electrophysiology, Saint Luke's Hospital of Kansas City.

Category: Original

Title: Integration of Pharmacy Technicians into Decentralized Pediatric Pharmacy Services.

Purpose: The purpose of this study is to determine whether integration of pharmacy technicians into the decentralized pediatric pharmacy model will improve the medication use process and nursing satisfaction at a community hospital.

Methods: This study has been submitted to the CoxHealth Human Protection Review Board for approval. After a workflow analysis of the pediatric pharmacist team completed in November 2016, a six-week prospective study on a pediatric floor, labor and delivery floor and neonatal intensive care unit will be conducted between December 2016 and January 2017. One decentralized pharmacy technician will be assigned to cover these locations Monday through Friday from 7:00 am to 3:30 pm to improve medication availability through coordination with the pharmacist and communication with nursing staff to address medication procurement needs. Each unit will serve as a control with 6 weeks' analysis during September-October 2016. The number of medication requests routed to the central pharmacy, infant formula mixing delays, medication delivery delays, unit inspection compliance and automated dispensing cabinet stock level adjustments will be evaluated during both study periods. Nursing satisfaction will be surveyed after the intervention period.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Karrie Derenski, PharmD, BCNSP, CNSC

Organization: CoxHealth

Authors: Karrie Derenski, PharmD, BCNSP, CNSC, Clinical Supervisor, Metabolic Support Coordinator, PGY2 Critical Care Residency Director, CoxHealth; Alaina Burch, CPht, Technical Supervisor, Dept of Pharmacy, CoxHealth; Sarah Hall, CPht, Pharmacy Technician, CoxHealth; Josselyn Rostam, CPht, Pharmacy Technician, CoxHealth; Jason Kramer PharmD, BCPS, BCPPS, Pediatric Clinical Pharmacist, CoxHealth; Glenda Adams, RPh, BCPPS, Pediatric Clinical Pharmacist, CoxHealth.

Category: Original

Title: Pharmacist-directed warfarin protocol dosing compared to practitioner warfarin dosing

Purpose: The Joint Commission released National Patient Safety Goal (NPSG) 03.05.01 to reduce the likelihood of patient harm associated with the use of anticoagulant therapy. Multiple studies have shown that pharmacists can play integral role in managing patients' anticoagulation medications such as warfarin. Christian Hospital implemented a new pharmacist-directed warfarin protocol service in February 2016 utilizing pharmacists to meet the NPSG. Previous research was performed comparing pharmacist-dosed warfarin to physician-dosed warfarin at Christian Hospital, but results were inconclusive due to review of only 9 patients at time of analysis. The objective of this study is to assess how successful the pharmacy department is compared to other practitioners at reaching and maintaining therapeutic international normalized ratios (INRs) now that more data is available since time of protocol implementation. This study may show how pharmacists are more successful than other practitioners at managing patients' warfarin effectively in regards to obtaining and maintaining therapeutic INRs. This could lead to fewer bleeding complications, fewer subtherapeutic INRs, and the possibility for physicians and other practitioners to utilize their skills in other areas of need.

Methods: The electronic medical record will identify patients who received warfarin prescribed by physicians and other practitioners from April 1, 2015 to January 31, 2016 as well as patients who have received and will receive warfarin "per pharmacy protocol" from April 1, 2016 to January 31, 2017. Patient charts will be reviewed to track the primary and secondary endpoints. The primary endpoints include days to reach therapeutic INR in new-start warfarin patients and patients out of INR goal range upon admission/pharmacy referral. An additional primary end point will include days within therapeutic INR in new-start patients and patients previously on warfarin. The secondary endpoints include adverse events (thrombus or bleed), supratherapeutic INRs (INR > 5), and percentage of patients who did not receive a therapeutic INR during his or her hospital stay. The following data will be collected: age, sex, ethnicity, first available weight, indication for warfarin therapy, INR on admission through discharge, bridge therapy utilized, prescribing clinician of pharmacy referral, number of days on warfarin, vitamin K doses administered, fresh frozen plasma administered, INR upon discharge, possible interacting medications, discontinuation of dosing service by clinician.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Tiffany Kiehna, PharmD

Organization: Christian Hospital, St. Louis, MO

Authors: No additional information

Category: Original

Title: Utilizing an electronic health record to improve pneumococcal vaccination rates

Purpose: Invasive pneumococcal disease is a serious public health concern that can be prevented with the use of pneumococcal vaccinations. Ensuring patients receive this intervention is complicated by the availability of multiple vaccines, pneumococcal conjugate vaccine (PCV13) and pneumococcal polysaccharide vaccine (PPSV23). Pneumococcal vaccination was removed as a Centers for Medicare and Medicaid Services core measure in 2014, which resulted in many hospitals de-emphasizing this important service. Our hospital's work redesign efforts removed responsibility for screening patients from pharmacy and reassigned it to nursing in 2012. A new inpatient workflow was developed by pharmacy in collaboration with nursing to facilitate the pneumococcal vaccination screening process when the Epic system was deployed in April 2014. In 2015, a retrospective analysis was performed to assess the new system. The correct pneumococcal vaccine was ordered via the screening tool 88% of the time. However, it was also discovered that only 9.9% of ordered vaccines were administered to patients. We saw this as an opportunity to improve this process.

Methods: A retrospective, non-randomized, observational study will be performed. The study period will be from January 1, 2017 through March 31, 2017 and include approximately 2,000 patients. Patients included in this study will be any patients ≥ 18 years of age who had an order for either PCV13 or PPSV23. Our previous study which included 1,925 patients will serve as our control group. Data will be collected across our five major metropolitan hospitals throughout the Saint Luke's Health System. Data retrieved will include patient age, location, MAR action (given, not given) status, vaccine billing code, and payer.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Theresa Lockwood, PharmD

Organization: Saint Luke's Hospital

Authors: Theresa Lockwood, PharmD; Jill T. Robke, PharmD, BCPS, FASHP; Mark Woods, PharmD, FASHP, BCPS.

Category: Original

Title: Hyperkalemia management at a large community teaching hospital

Purpose: No consensus guidelines exist to assist practitioners in treating hyperkalemia. Many medications can induce hyperkalemia, including several that have long-term morbidity and mortality benefits. Sodium polystyrene sulfonate (SPS), a cation-exchange resin, is a common treatment option for elevated serum potassium. The inappropriate use of SPS may lead to potassium over correction, electrolyte disturbances, and other potentially serious adverse effects. Pharmacists play a critical role in ensuring the appropriate use of medications, including SPS. The objective of this study is to describe the use of SPS at a large community teaching hospital and evaluate which factors are associated with appropriate use.

Methods: Patients who received at least one dose of SPS are being identified from the electronic medical record and pharmacovigilance software. Data is being collected on approximately 100 patients receiving SPS at Mercy Hospital St. Louis from 12/01/2015 to 12/31/2016. Data including age, sex, race, creatinine clearance (calculated from Cockcroft-Gault equation), potassium, sodium, blood glucose, magnesium, temperature, heart rate, blood pressure, respiratory rate, oxygen saturation, weight, electrocardiogram, height, body mass index, SPS dose, medications that affect potassium, history of heart failure or chronic kidney disease, length of stay, mortality, and hospital unit are being collected and evaluated. Appropriate use is being defined as potassium level greater than or equal to 5.5 mEq/L prior to administering SPS for patients with no contraindications to use, including: hypokalemia (less than 3.5 mEq/L), history of hypersensitivity to polystyrene sulfonate resins, and/or obstructive bowel disease. Descriptive statistics will be used to describe appropriate use, as well as other results. Correlation analyses will be performed to determine if appropriate use is associated with any particular factors.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Zachary Mueller, PharmD

Organization: St. Louis College of Pharmacy / Mercy Hospital St. Louis

Authors: Zachary T. Mueller, PharmD, PGY1 Pharmacy Resident, St. Louis College of Pharmacy / Mercy Hospital, St. Louis; Andrew J. Crannage, PharmD, BCPS, Associate Professor of Pharmacy Practice / Internal Medicine Clinical Pharmacist, St. Louis College of Pharmacy / Mercy Hospital, St. Louis.

Category: Original

Title: Management of Heparin Infusions in the Obese Population

Purpose: In June 2016, an update to the heparin infusion protocol for the treatment of venous thromboembolism was implemented at a 330 bed community hospital. Prior to this update, there were no limitations or caps on the bolus dose or the initial infusion dose of heparin. After the update, patients that weighted >150 kilograms had their bolus and initial infusion dosed based on an adjusted body weight in place of actual body weight. The objective of the study is to review the effects of this change on the patients' initial PTT, time to first therapeutic PTT, and the difference between the initial infusion rate and the infusion rate resulting in 2 consecutive therapeutic PTTs. A secondary objective was to review the effectiveness of the hospital's heparin protocol for all patients >100 kilograms.

Methods: This is a retrospective quality improvement project. Patients admitted after June 14th 2016 who were prescribed heparin from the "heparin for VTE" order set were eligible for inclusion. Other inclusion criteria included a weight > 100 kilograms, documentation of an administered heparin bolus and initial infusion, and at least one PTT result obtained after the initiation of the infusion. Measurement of PTTs and changes to the heparin infusion rate were reviewed for compliance with the hospital's protocol. The primary outcome is time to first therapeutic PTT. Data collection included weight, body mass index, bolus dose, initial infusion rate, baseline and the first three subsequent PTTs, time to first therapeutic PTT, infusion rate at the time of two consecutive PTTs, and major and minor bleeding episodes.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Kathryn Wdowiarz, PharmD, BCPS

Organization: Midwestern University and Edward Elmhurst Healthcare

Authors: Kathryn Wdowiarz, PharmD, BCPS, Assistant Professor, Midwestern University Chicago College of Pharmacy, Downers Grove, IL, and Internal Medicine Clinical Pharmacist, Edward Elmhurst Healthcare, Naperville, I; Danielle Petric, PharmD Candidate, Midwestern University Chicago College of Pharmacy, Downers Grove, IL.

Category: Student

Title: Evaluation of a post-discharge prescription special authorization subsidy at an urban safety net hospital

Purpose: Patients within Truman Medical Centers (TMC) often lack financial resources to acquire acute-need discharge medications. As a result, patients are at risk to remain hospitalized for the entire duration of medical therapy or to discharge unsafely with little access to necessary medications. In response, TMC began a Walgreens Special Authorization program (Walgreens 1APA) in 2011 to assist patients requiring acute, life-sustaining medications. The program has continued expanding since its initiation. Analyzing patient outcomes data, defining the patient population, and evaluating the medication management processes will give researchers the tools to improve the special authorization subsidy for retail prescriptions and to expand services to additional “at risk” patients within the TMC health-system.

Methods: Researchers received approval from the Institutional Review Board to complete a retrospective cohort study. The study population consists of patients admitted to Truman Medical Center-Hospital Hill who discharged between January 1, 2016 and June 30, 2016, and required assistance obtaining post-discharge prescriptions through the 1APA Program. The following information will be collected: age on discharge, gender, post-discharge medication type, indication for therapy, intravenous to oral conversion prior to discharge, quantity of medication dispensed, estimated hospital days prevented, estimated cost avoidance, and all-cause readmission within 30 days. The primary end point is the 30-day unplanned readmission rates for patients approved for the 1APA program. Secondary endpoints will define the demographics of the patient population approved for the 1APA program.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Paige Melling, PharmD Candidate

Organization: Truman Medical Centers

Authors: Paige Melling, PharmD Candidate 2017, University of Missouri-Kansas City School of Pharmacy, Pharmacy Intern at Truman Medical Centers; Lauren Mishler, PharmD, BCPS, University of Missouri-Kansas City School of Pharmacy, Clinical Lead Pharmacist-Transitional Care at Truman Medical Centers; Michael (Tony) Huke, PharmD, BCPS, University of Missouri-Kansas City School of Pharmacy, Clinical Manager-Medication Use/PGY1 Residency Program Director at Truman Medical Centers.

Category: Encore

Title: Evaluation of an argatroban protocol regarding efficacy, safety, and appropriateness of use.

Purpose: To evaluate the use of an argatroban protocol at five hospitals within the SSM Health St. Louis Network in order to assess its efficacy, safety, and appropriateness of use.

Methods: The electronic medical record system was queried to identify all patients aged 18 or older within the five included hospitals who received argatroban between August 1, 2015 and July 31, 2016. All individuals with an aPTT goal within the protocol defined range were included. The following data was collected from the patients' medical records: medical record number, age, diagnosis for argatroban use, baseline lab values (aPTT, PT, INR, AST, ALT, Albumin, SCr, BMI), dosing nomogram used (standard for BMI less than 30, standard for BMI greater than or equal to 30, critical care/hepatic impairment), initial argatroban dose, time to goal aPTT, whether or not aPTT was supratherapeutic prior to goal, number of dose adjustments to attain goal aPTT, dose at goal, deviations from protocol, and adverse effects related to bleeding and thrombosis. Descriptive statistics were utilized to analyze the data. The primary efficacy endpoints were time to goal aPTT and rate of new or extended thrombosis. The primary safety endpoint was the rate of major bleeding as defined by the International Society on Thrombosis and Haemostasis. Compliance rates with the protocol, including appropriate nomogram selection and average number of deviations from protocol, were also be assessed.

Results: Forty patients were evaluated, all of whom had suspected, confirmed, or previously documented heparin-induced thrombocytopenia (HIT). The mean initial dose was 1.3 ± 0.6 mcg/kg/min. The average time to goal was 6.6 ± 5.3 hours, and patients required an average of 0 ± 1 dose adjustments to reach goal. The mean dose at goal was 1.3 ± 0.7 mcg/kg/min. A total of 17 patients were initiated on standard dosing for BMI < 30 (initial dose: 2 mcg/kg/min), with 14 patients initiated on standard dosing for BMI \geq 30 (initial dose: 1 mcg/kg/min) and 9 patients initiated on hepatic/critical care dosing (initial dose: 0.5 mcg/kg/min). Per the protocol, 9 patients qualified for standard dosing for BMI < 30, 5 qualified for standard dosing for BMI \geq 30, and 26 qualified for hepatic/critical care dosing. Although less than 50% of patients were initiated on the appropriate dosing nomogram per the protocol, 72.5% of patients did not require a dose adjustment to attain goal aPTT. In relation to compliance with aPTT monitoring, 35% of patients had at least 1 aPTT drawn late. Bleeding events occurred in 40% of patients, but most were minor and primarily attributed to causes other than argatroban use. No cases of new or extended thromboses were identified.

Conclusions: Current argatroban use within the SSM Health St. Louis Network is safe and effective despite lack of adherence to the protocol. The current argatroban protocol should be modified so patient selection for dosing nomograms per the protocol, specifically the hepatic/critical care dosing nomogram, results in appropriate dosing for patients.

Submitting Author: Sarah Cook, PharmD

Organization: SSM Health St. Mary's Hospital

Authors: Sarah Cook, PharmD - PGY1 Pharmacy Practice Resident, SSM Health St. Mary's Hospital; Brian Rodden, PharmD, BCPS - Critical Care Clinical Pharmacy Specialist, SSM Health St. Mary's Hospital; Davina Dell-Steinbeck, PharmD, BCPS - Clinical Pharmacy Specialist, Residency Program Director, SSM Health St. Mary's Hospital.

Category: Encore

Title: Time is of the essence; evaluation of treatment courses when vancomycin is dosed every 18 hours

Purpose: The purpose of this study is to examine the patient population that has required a dosing interval of every 18 hours to validate this dosing regimen and see if recommendations can be made for initiating a dosing interval of every 18 hours based on patient characteristics.

Methods: This study has already been submitted to and approved by the internal review board. The electronic medical record system will be used to identify adult patients who have received intravenous vancomycin administered every 18 hours. All adult patients between the ages of 18 and 89 who received a dose of intravenous vancomycin administered every 18 hours between August 1, 2013 and July 31, 2016 will be eligible for inclusion. Patients over the age of 89, those on hemodialysis, those who are pregnant, patients receiving continuous infusion vancomycin therapy, patients whose vancomycin troughs were not monitored, and subsequent visits of patients who were previously on q18 vancomycin dosing will be excluded. For the purposes of assessing primary and secondary outcomes the following patient data will be gathered: disease indication, gender, age, creatinine clearance, weight, race/ethnicity, vancomycin trough levels, number of vancomycin doses received, and milligrams of vancomycin in each dose. All data will be collected without patient identifiers and will remain confidential. Analysis will be conducted using descriptive statistics. The primary outcome will be number of patients subtherapeutic, therapeutic, and suprathereapeutic after receiving q18 vancomycin dosing based on trough levels. Secondary outcomes will include: number of patients who were mildly (21-25), moderately (26-30), or severely (>30) suprathereapeutic based on trough levels and toxicity associated with vancomycin use.

Results: 141 patients met the inclusion criteria and 110 were included in the analysis due to the fact that some patients received a higher or lower dose than indicated by the protocol. The evaluation found that patients most likely to benefit from a dosing interval of 18 hours were those with a creatinine clearance between 50 and 72 mL/min. After examining the patients who were not therapeutic when dosed at this interval it was found that the majority of those patients did not fall within this identified range. 66% (n=24) of subtherapeutic patients had creatinine clearance values outside the identified range mentioned above and 75% (n=9) of suprathereapeutic patients had creatinine clearance values outside of the range. The median age for patients who were therapeutic on this regimen was 70 years with an interquartile range of 63 to 76.

Conclusions: This drug use evaluation demonstrates that the vancomycin dosing protocol currently in use at SSM Health St Mary's Hospital should tentatively be expanded to include additional dosing intervals for patients < 75 years of age. A dosing interval of every 18 hours should be initiated in patients with a creatinine clearance ranging from 50 to 70. Furthermore, this range appears to be particularly effective for patients between the ages of 63 and 75 although age appeared to have a lesser effect than creatinine clearance. However, before officially recommending a change in protocol the next step will be to validate the finding of this study by analyzing patients who were suprathereapeutic on a dosing interval of every 12 hours with a creatinine clearance in the specified range.

Submitting Author: Daphne Goewey, PharmD

Organization: SSM Health St Mary's Hospital

Authors: Daphne Goewey, PharmD, MBA, PGY1 Pharmacy Resident, SSM Health St Mary's Hospital, St Louis; Davina Dell-Steinbeck, PharmD, BCPS, PGY1 Pharmacy Residency Program Director, SSM Health St Mary's Hospital, St Louis; Krista Harry, PharmD, BCPS, Clinical Pharmacy Specialist, SSM Health St Mary's Hospital, St Louis.

Category: Encore

Title: Pharmacy Desensitization in a Collaborative Practice with Allergy Clinic

Purpose: Purpose: Desensitization is a medical treatment for some types of allergies with the aim to induce or restore tolerance to the allergen by reducing its tendency to induce IgE antibody production. Patients are desensitized through the administration of escalating doses of allergen that gradually decreases the IgE-dominated response. The purpose of this poster is to summarize and describe a model for an ambulatory care pharmacy to prepare, label and provide all desensitization medication needs to the Allergy clinic for patient specific administration.

Methods: Patient is seen at the Medical Center and is diagnosed with a disease state that requires the patient to use a drug they may be allergic to. For example, a patient may have a documented metronidazole allergy, but needs the drug for treatment of their diagnosed condition. The Allergy Clinic doctors become involved in the case and will enter a desensitization prescription for the patient. This prescription is sent to the outpatient pharmacy with a time and date that the order is needed by. The outpatient pharmacy assesses the appropriateness of the order by conducting a detailed clinical review, checking the compatibility and stability of products, as well as dosing calculations. Once all clinical requirements are met, the outpatient pharmacy also ensures the products are available and can be ordered through the pharmacy ordering system. With everything in place, the order is prepared and the Allergy Clinic staff picks up the order to administer to the patient in the clinic.

Results: This full-circle collaboration between an outpatient pharmacy and clinic staff allows for a mechanism of completing desensitization orders and ensuring delivery to the Allergy Clinic for the most effective patient care. It was determined that the outpatient pharmacy was best equipped to provide the desensitization orders to the Allergy Clinic because of the detailed clinical review provided, ability to order required products directly, as well as use of an on-site clean room. The outpatient pharmacy has an agreement with the Allergy clinic to have all orders prepared in time for the clinic staff to pick up and take back to clinic. Overall, a model of an outpatient pharmacy-prepared desensitization order was designed and implemented successfully for an affiliated Allergy Clinic. Specifically, patients that were noted to have a documented allergy were able to successfully undergo treatment for their medical condition without increased risk to their health.

Conclusions: An outpatient pharmacy staffed with pharmacists providing thorough clinical review of all desensitization orders and equipped with a sterile compounding facility is best suited to meet the needs for preparation of desensitization orders. All desensitization orders were prepared in a timely and efficient manner, allowing for patient access to quality care and further contributing to positive outcomes such as decreasing risk of allergic reaction during treatment, avoiding major side effects to medications, and decreasing cost for this sensitive patient population.

Submitting Author: Daniel Haywood, PharmD Candidate

Organization: University of Illinois Hospital & Health Sciences System, EEI Ambulatory Care Pharmacy

Authors: Sami Labib, RPh, Clinical Assistant Professor, Pharmacy Practice Assistant Director, Clinical Instructor. Monazzah Sarwar, PharmD, Clinical Instructor, Clinical Pharmacist; Steven Menachof, PharmD Candidate, EEI Extern; Daniel Haywood, PharmD Candidate, EEI Extern.

Category: Student

Title: Assessment of compliance to the guidelines for the appropriate use of push-dose vasopressors at a large academic medical center

Purpose: Acute hypotension is often observed in the intensive care unit (ICU) and it is crucial this be recognized and managed quickly. Bolus administration of intravenous (IV) vasopressors, or “push-dose vasopressors” (typically phenylephrine and epinephrine) are frequently utilized to temporize blood pressure in the acute setting (short-lived hypotension or bridge to vasopressor infusion). While this practice is common, there is a paucity of data addressing appropriate use of these agents. As such, guidelines for use of push-dose vasopressors were created and implemented for in-patient use at a large academic medical center. Prior assessments of adherence to the guidelines demonstrated high rates of noncompliance. To address noncompliance to the guidelines, revisions were implemented to the guidelines. Thus, the aim of this study is to assess continued compliance to the guidelines.

Methods: This was a retrospective medical record review at large academic medical center. The primary objective was to determine adherence to practice guidelines for phenylephrine and epinephrine syringes. A random 20% sample of phenylephrine and a random 20% sample of epinephrine vends from the automatic dispensing machine were assessed for full compliance to the guidelines from May 31-July 31, 2016. Patients were excluded if there was lack of identifying information and use of syringes in a patient care area that does not utilize the electronic medical record for documentation. Full compliance is met if the phenylephrine or epinephrine vend has an order and documentation of administration in the electronic medical record. If a vend was completed, but there is no documentation of administration, there must be record of the syringe being returned to the automated dispensing machine. A vend is partially compliant if a syringe is removed in anticipation of hypotension, not administered to the patient, but not returned to the automated dispensing machine. A vend is noncompliant if there is no order, documentation of administration or documentation of return to the automated dispensing machine. Secondary objectives include determining adherence to practice guidelines specifically for epinephrine syringes.

Results: One thousand five hundred twenty six vends were screened for inclusion (244 epinephrine vends and 1302 phenylephrine vends). A random sample of 20% of each phenylephrine and epinephrine vends were reviewed for primary analysis (n=266 and 55 respectively). Thirty-one vends were excluded due to missing or invalid visit ID (n=20) and lack of available records (n=11). Thus, 290 total vends were included in the final analysis (phenylephrine n=242, epinephrine n=48). One hundred twenty two vends (42%) were observed as being fully compliant to the guidelines, while 53 vends (18.4%) were partially compliant and 115 (39.6%) were non-compliant.

Conclusions: This evaluation demonstrates a decrease in adherence to the guidelines for appropriate use of push-dose vasopressors.

Submitting Author: Sana’a AlSulami, PharmD Candidate

Organization: St. Louis College of Pharmacy

Authors: Sana’a Jayel AlSulami, PharmD Candidate 2017, St. Louis College of Pharmacy; Gabrielle Gibson, PharmD, BCPS, BCCCP, Barnes-Jewish Hospital, St. Louis.

Category: Student

Title: Reducing Polypharmacy: Deprescribing at an Academic Medical Center

Purpose: Polypharmacy is a growing problem within the healthcare system contributing to an increased risk of adverse drug reactions, potential drug-drug interactions, non-adherence to medications, and associated health care costs. The objective of this study is to reduce polypharmacy through the process of deprescribing. Deprescribing is defined as the process of tapering, stopping, discontinuing, or withdrawing drugs that are deemed inappropriate or no longer necessary. Deprescribing aims to manage polypharmacy and improve patient outcomes; therefore, reducing the risks associated with using multiple medications. Additionally, this study aims to enhance the standard of care by evaluating a patient's home medication list during an inpatient hospitalization with the overall goal of simplifying the patient's drug regimen.

Methods: This project was conducted in conjunction with a deprescribing quality improvement initiative at an academic medical center in Springfield, IL. The quality improvement team identified patients aged 65 years or older, taking at least 8 medications at home who were admitted to the Southern Illinois University (SIU) Internal Medicine Team and were patients at the SIU Internal Medicine Team Clinic. The patient's home medication list was reviewed upon admission to the hospital by a pharmacist or a physician on the quality improvement team and potential unnecessary or inappropriate medications were identified with the intent of deprescribing. Stopping these medications was discussed with the patient and documented within their electronic health record. This study used a retrospective chart review to determine which home medications upon admission were considered inappropriate and eligible to be stopped and which medications were actually stopped. The study also recorded the physician rationale for why a particular medication was deprescribed.

Results: Of the numerous patients screened, 31 were eligible for this study. Of these eligible patients, the average number of medications upon admission and discharge was 16 and 15, respectively. On average, 3 medications were deprescribed per patient, yet 5 or more medications were discontinued in 26% of patients. The medications discontinued varied widely from antihypertensive agents, antiplatelet medications, antibiotics, and proton pump inhibitors amongst several other pharmacologic classes. In 45% of patients, the rationale for discontinuation of at least one medication was noted as unnecessary medication therapy and occasionally, the medication was responsible for the patient's hospitalization.

Conclusions: Polypharmacy is a prominent issue in patients 65 years and older. These patients are on several medications, often unnecessarily. The process of deprescribing has several different challenges, but this initiative demonstrated the positive impact of simplifying a patient's drug profile and it would be beneficial if such research was conducted on a larger scale.

Submitting Author: Morgan Atwood, PharmD Candidate

Organization: Southern Illinois University Edwardsville School of Pharmacy

Authors: N/A

Category: Student

Title: Medication use evaluation of metformin in patients with chronic kidney disease

Purpose: Metformin is a first-line medication for the treatment of diabetes mellitus. In April of 2016, the Food and Drug Administration required changes to metformin labeling, pertaining to use in patients with chronic kidney disease (CKD). This quality improvement initiative evaluated patients at the Harry S. Truman VA (HSTVA) with diabetes and CKD, who were not on metformin. The purpose was to identify patients who may benefit from metformin therapy, after the recent FDA labeling changes.

Methods: The quality improvement project was approved in May 2016 by the HSTVA Pharmacy and Therapeutics Committee. A retrospective evaluation was performed through electronic chart review. Veterans at the HSTVA with an outpatient visit between 10/1/2015 and 2/29/2016, a diagnosis of diabetes, no active VA prescription for metformin, eGFR 45-60 ml/min, and A1c \geq 8% were evaluated. Patient charts were assessed for history of prior use of metformin and reason for discontinuation, if applicable. If metformin was discontinued for adverse gastrointestinal (GI) effects, history of a prior trial of metformin SA was collected.

Results: A total of 453 chart reviews were completed, out of which of 64 Veterans met the inclusion and exclusion criteria. Forty-one Veterans received metformin from the VA in the past. The most common reasons for discontinuation included GI adverse effects (n = 14), renal insufficiency (n=14), and unknown reasons (n=9). Of the 14 Veterans with GI adverse effects, nine had not tried metformin SA. Of the five patients with GI adverse effects who tried metformin SA, three still experienced GI adverse effects. A total of 61 patients are candidates for metformin, using either the immediate-release or SA formulation

Conclusions: A total of 61 Veterans at the HSTVA would benefit from the addition of metformin for the control of diabetes. These Veterans will be evaluated for enrollment in the Patient-Aligned Care Team (PACT) pharmacy clinic for the management of diabetes. Alternatively, a pharmacist will recommend to adding metformin to the patients' primary care provider.

Submitting Author: Miriam Belonwu, PharmD Candidate

Organization: UMKC School of Pharmacy at MU

Authors: Miriam Chikodili Belonwu, PharmD Candidate, UMKC School of Pharmacy at MU; Barbara Jean Kasper, PharmD, BCACP, Assistant Clinical Professor, UMKC School of Pharmacy at MU, Harry S. Truman Memorial Veterans' Hospital.

Category: Student

Title: Aztreonam medication use evaluation

Purpose: Identify and explain the reasons for Mercy Hospital Joplin's high aztreonam use based on days of therapy (DOT) per 1000 patient days.

Methods: The profiles of all 69 patients who received aztreonam therapy from Jul-Oct 2016 at Mercy Hospital Joplin were analyzed via a 17 point medication use evaluation (MUE) questionnaire. This questionnaire included information such as: routine order set use, indication, penicillin (PCN) allergy and description, dose and renal function, pharmacy consult and intervention, double beta-lactam coverage, and length of therapy (LOT)

Results: The top indications included pneumonia (51%), severe sepsis/septic shock (23%), and urinary tract infection (UTI) (12%) with an average LOT of 3.62 days. Only 43% of overall orders were for patients with a life-threatening PCN allergy (including hives). Pharmacy was consulted in about 1/5 cases and made adjustments to dose in about half of their consults. The ordering physician followed Mercy Hospital dosing protocol in all but 3 cases with optimal dosing achieved 81% of the time. Double beta-lactam coverage was present in 23% of orders with Zosyn and aztreonam being the most common combination. When ID was consulted in these cases they promptly de-escalated therapy.

Conclusions: All aspects of therapy were optimal in 1/3 cases during this evaluation period. The main areas to target for improved use are: renal adjustment of dosing, prompt de-escalation of therapy, PCN allergy assessment. The aztreonam dosing protocol may also need to be updated to better reflect current recommendations. Another MUE will be conducted in January in order to assess the impact of this MUE and the education of staff that followed.

Submitting Author: Laken Brock, PharmD Candidate

Organization: Mercy Hospital Joplin

Authors: Laken Brock, PharmD Candidate 2017, Creighton University School of Pharmacy and Health Professions.

Category: Student

Title: Fall Risk Assessments in a Community-based Senior Outreach Program

Purpose: Falls among older adults are a serious public health concern. Each year, one in three Americans 65 years and older falls. Of those falls, 55 percent lead to an unintentional injury or death. Medications are a modifiable risk factor for falls; therefore, screening for high-risk drug therapies plays a key role in mitigating medications' impact on falls risk. Furthermore, nationally recognized resources, tools and evidence-based falls prevention programs, exist to empower older adults to decrease their risk of falls. The aim of this study was to screen community based older adults for fall risk, promote community based Matter of Balance program (MOB), and refer those taking high-risk medications to comprehensive medication review (CMR).

Methods: Older adults were screened for fall risk in September 2016, predominantly, at local senior centers (n=15) and one Senior Fest. Assessments included: CDC STEADI Fall Risk Checklist (high risk: if answered Yes to 4 or more questions, if fallen in the past year, if taking medications for sleep or mood disorders, and/or if experiencing dizziness or fatigue due to medications), Timed Up and Go (TUG) test (high risk: >12 seconds), orthostatic blood pressure, and high risk medication class review. All older adults were encouraged to participate in MOB, and those taking high-risk medications were encouraged to have health care provided CMR. Program evaluation was assessed.

Results: Four hundred thirty nine participants (mean age 72.9, range 47-95) were assessed for fall risk. When permitted, those identified at higher risk of falls via the CDC STEADI tool (244/439, 55.58%) were further assessed. Reasons identified for fall risk included: TUG test (69/244, 28.28%), orthostatic blood pressure (11/244, 4.51%), and high-risk medications (150/244, 61.48%). High-risk medication classes included: CNS active medications- benzodiazepines, antipsychotics, anti-epileptics, antidepressants, sedatives, anti-parkinsons', opioids, muscle relaxants and/or antihistamines (52/244, 21.31%), antihypertensives (126/244, 51.64%), and sulfonylureas (17/244, 6.97%). Older adults with two or more CNS active medications (20/244, 8.2%). Older adults likely to participate in CMR (163/439, 37.13%), MOB (169/439, 38.5%) and/or make changes to their home environment (153/439, 34.85%) as a result of the program were referred.

Conclusions: Fall risk assessments by health care providers in community based older adults accompanied with referral to structured evidence based medication reviews and self-care training programs contributes to overall public health, safety promotion and national fall prevention efforts.

Submitting Author: Yesha Patel, PharmD Candidate

Organization: University of Illinois at Chicago College of Pharmacy

Authors: Yesha Y. Patel, PharmD Candidate 2017, University of Illinois at Chicago College of Pharmacy, Hospital Pharmacy Extern, University of Illinois Hospital and Health Sciences System; Michael J. Koronkowski, PharmD, Clinical Assistant Professor, Department of Pharmacy Practice, University of Illinois at Chicago College of Pharmacy; Adam Bursua, PharmD, Clinical Assistant Professor, Department of Pharmacy Practice, University of Illinois at Chicago College of Pharmacy; Kristen L. Goliak, PharmD, Clinical Associate Professor, Department of Pharmacy Practice, University of Illinois at Chicago College of Pharmacy.

Category: Student

Title: Evaluation of Combination Antibiotic Therapy in the Treatment of Pseudomonas aeruginosa in a Community Hospital

Purpose: Empiric antimicrobial treatment for patients at risk for multidrug resistant gram negative organisms such as Pseudomonas aeruginosa has typically consisted of an anti-pseudomonal beta-lactam plus either fluoroquinolone or aminoglycoside.^{1,2} At North Kansas City Hospital (NKCH) fluoroquinolones have been predominantly chosen over aminoglycosides due to a more favorable adverse effect profile. As susceptibility rates for fluoroquinolones against Pseudomonas aeruginosa have declined at NKCH, the benefit of empiric double coverage in this patient population has come into question.^{3,4} The purpose of this study is to evaluate the appropriateness of routine double coverage empiric therapy for Pseudomonas aeruginosa infections in patients admitted to NKCH.

Methods: This retrospective review included patients admitted to North Kansas City Hospital from August 1, 2014 to July 31, 2016 with blood and/or respiratory cultures positive for Pseudomonas aeruginosa. The primary outcome is the minimum inhibitory concentration of cefepime, levofloxacin, meropenem and piperacillin/tazobactam to Pseudomonas aeruginosa. This data will be incorporated into our recommendations for further empiric coverage of MDR gram negative infections at NKCH.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Megan Chittum, PharmD Candidate

Organization: North Kansas City Hospital

Authors: Kristin Peterson, PharmD Candidate; Megan Chittum, PharmD Candidate; Michael Kallenberger, PharmD, BCPS; Monika Totoraitis, PharmD, BCOP. All North Kansas City Hospital.

Category: Student

Title: Dose Adjustments of Thiopurines in Patients Based on Thiopurine Methyltransferase Activity

Purpose: Azathioprine is a prodrug whose active metabolite, 6-mercaptopurine (6-MP), is a purine analogue that exerts its immunosuppressive effects by interfering with DNA synthesis and repair. 6-MP is metabolized by the enzyme thiopurine methyltransferase (TPMT) to produce 6-methylmercaptopurine (6-MMP). Deficiency of this enzyme leads to excessive amounts of 6-MP, which then causes the metabolism to occur down an alternate pathway. This can result in life-threatening myelosuppression. TPMT is a cytoplasmic transmethylase that is present in most bodily tissues such as the heart, placenta, pancreas, intestine, and red blood cells. When using standard dosing, low levels of TPMT activity have been associated with an increased risk for thiopurine toxicities such as severe myelosuppression. Conversely, high activity levels have been associated with suboptimal treatment. Several studies have examined whether there is a benefit to testing markers of TPMT activity prior to the administration of thiopurines to guide empiric dosing adjustments. Currently, University of Chicago Medicine does not have a protocol that addresses specific starting doses and subsequent dose adjustments of thiopurines based on TPMT phenotype category. The purpose of this retrospective single center study is to identify optimal dosing for patients based on their TPMT phenotype category.

Methods: A lab report of all TPMT results from 1/1/2015 to 6/30/2016 will be used to identify patients that received phenotype testing. Additional data will be obtained from the electronic medical record, including patient demographics and baseline characteristics [age, sex, race, CrCl, TPMT phenotype category (low, low normal, normal, or high), indication for treatment, specific thiopurine drug utilized, initial thiopurine dose, CBC, AST, ALT, alkaline phosphatase, bilirubin, number of subsequent dose adjustments, and final dose]. The primary endpoint will be the final dose for each TPMT phenotype category. Secondary endpoints are the percentage of patients that received dose adjustments based on TPMT phenotype category, the average number of dose adjustments, and the percentage of patients who experiences toxicities and adverse events. Inclusion Criteria: •All patients at UCM who received TPMT phenotype testing between January 1, 2015 and June 30 2016 Exclusion Criteria: •Patients who received no doses of thiopurine drugs following TPMT testing •Pregnant and lactating women •Patients taking febuxostat, doxorubicin, or allopurinol at the time of thiopurine initiation •Patients with a blood transfusion within 60 days prior to TPMT testing •History of use of alkylating agents: Altretamine, Bendamustine, Busulfan, Carboplatin, Carmustine, Chlorambucil, Cisplatin, Cyclophosphamide, Estramustine, Ifosfamide, Lomustine, Mechlorethamine, Melphalan, Oxaliplatin, Procarbazine, Streptozocin, Thiotepa, Dacarbazine, Temozolomide •Renal transplant rejections •Renal impairment, defined as CrCl <50 ml/min, or patients on Hemodialysis or Continuous Renal Replacement Therapy Statistical Analysis: •Descriptive Statistics •Multi-variant logistic regression

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Brittany Huff, PharmD Candidate

Organization: University of Chicago Medical Center

Authors: Brittany M Huff, PharmD Candidate, Chicago State University College of Pharmacy, Student Pharmacist; Trevor N. Christ, PharmD, University of Chicago Medical Center, Clinical Pharmacy Specialist-Adult Hematology/Oncology; Shannon M. Rotolo, PharmD, BCPS, University of Chicago Medical Center, Clinical Pharmacy Specialist-General Pediatrics.

Category: Student

Title: The Impact of Pharmacist-Driven Pantoprazole to Famotidine Substitution Protocol on Rates of Hospital-Acquired Clostridium difficile

Purpose: According to the FDA, the risk for Clostridium difficile infection (CDI) is 1.4-2.75 times higher among patients on a proton pump inhibitor (PPI) as compared to H2-receptor antagonists (H2RAs). Data from previous trials extensively document a positive association between the use of PPIs and development of CDIs. This study aims to minimize inpatient PPI use and retrospectively compare rates of CDI in patients on antibiotics and pantoprazole versus patients on antibiotics and famotidine.

Methods: A retrospective chart review will be conducted of patients admitted to Decatur Memorial Hospital between 01/04/2016 – 03/21/2016 on pantoprazole and antibiotics and 01/09/2017 – 03/27/2017 on famotidine and antibiotics. Beginning December 2016, patients meeting inclusion criteria requiring GI prophylaxis would be started on famotidine if not on a PPI at home. Patients on a PPI at home requiring GI prophylaxis in the hospital for gastroesophageal reflux disease (GERD), stress ulcer prophylaxis (SUP), or GI protection for dual antiplatelet therapy (DAPT) and concomitantly on any antibiotic therapy would be switched from the PPI to famotidine while inpatient. Patients with Barrett's esophagus, current or history of GI bleed, Helicobacter pylori infection, or previous gastric surgery will be excluded. From 01/09/2017 – 03/27/2017, patients on antibiotics and famotidine will then be assessed to observe CDI rates after the new protocol was implemented.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Regan Kitchens, PharmD Candidate

Organization: Southern Illinois University Edwardsville School of Pharmacy

Authors: Kristi Stice, PharmD, BCPS - Director of Pharmacy, Decatur Memorial Hospital; Sarah Zukkoor, PharmD, BCPS, AQC - Clinical Pharmacist, Decatur Memorial Hospital.

Category: Student

Title: Evaluation of pain medication management in patients admitted to a large academic hospital

Purpose: The purpose of this study is to examine pain medication orders and their administration in patients admitted to a large academic medical center, in order to promote opportunities to enhance patient outcomes. Outcomes being evaluated include pain indication, percentage of patients without active PRN orders for all pain scores, percentage of inappropriate medication administrations based on reported pain score, percentage of appropriate medication administrations resulting in no improvement in pain level, and the percentage of time pain was reassessed 1 hour after medication administration. For inappropriate medication administrations, we will investigate whether this was caused by a missing order. We will also assess whether patients on prescription pain medications prior to hospital admission or who received inappropriate pain medication administration at the hospital had an increased length of stay.

Methods: This is an IRB approved retrospective chart review of patients admitted to a large academic hospital who received at least one dose of an analgesic pain medication, determined by using the hospital electronic health record. Inclusion criteria comprise patients at least 18 years old, who were admitted to the general service and who received at least one administration of an analgesic pain medication during the three month study period. Exclusion criteria consist of patients with sickle cell disease, HIV, cancer pain, cancer or HIV diagnosis, or on patient controlled analgesia. We are collecting baseline demographics, pain medication orders, reported pain scores, assessment of pain 1 hour post-administration (per hospital policy), indications, and other pharmacologic agents received by patients that may alter pain based on indication (e.g. antidepressants, anticonvulsants).

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Sarah Lapsker, PharmD Candidate

Organization: Midwestern University Chicago College of Pharmacy

Authors: Sarah E. Lapsker, PharmD Candidate, Midwestern University Chicago College of Pharmacy, Loyola University Medical Center; Anne K. Reda, PharmD Candidate, Midwestern University Chicago College of Pharmacy, Loyola University Medical Center; Danya Faruqi, PharmD Candidate, Midwestern University Chicago College of Pharmacy, Loyola University Medical Center; Tran H. Tran, PharmD, BCPS, Midwestern University Chicago College of Pharmacy, Loyola University Medical Center.

Category: Student

Title: Descriptive evaluation of IV Calcium use in the setting of acutely elevated serum potassium at a tertiary academic institution

Purpose: Guideline recommendations regarding the use of calcium for the management of hyperkalemia vary, particularly in the absence of new ECG changes. The aim of this research is to evaluate the use of IV calcium in the setting of elevated serum potassium and describe its use in the absence of ECG changes.

Methods: This retrospective medical record review will examine patients age 18 to 89 years admitted to Barnes-Jewish Hospital from July 1, 2015 through June 30, 2016 with serum potassium > 5.0 mEq/L and an order for IV calcium gluconate or calcium chloride. Patients will be excluded if they receive a single dose of IV calcium in excess of 3 grams, a continuous infusion of IV calcium, or have an indication other than elevated serum potassium, i.e. calcium channel overdose, beta blocker overdose, hypocalcemia, or hypoparathyroidism. The primary outcome will be the proportion of all IV calcium orders administered without ECG changes present. ECG abnormalities, i.e. peaked T-waves, widened QRS interval, absent P wave, or PR interval prolongation, if not clearly attributed to elevated serum potassium in the ECG report will be reviewed by a physician for final adjudication. Secondary outcomes include proportion of IV calcium administrations based on potassium level, total initial and cumulative calcium dose, additional hyperkalemia therapies received, incidence of hyperkalemia and hypercalcemia at twenty-four hours, length of stay, and the proportion of orders input through a hyperkalemia order set.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: David Ross, PharmD Candidate

Organization: St. Louis College of Pharmacy

Authors: David G. Ross, PharmD Candidate 2017, St. Louis College of Pharmacy; Aaron P. Hartmann, PharmD, BCPS, Assistant Professor of Pharmacy Practice, St. Louis College of Pharmacy; William B. Call, PharmD, BCPS, Assistant Professor of Pharmacy Practice, St. Louis College of Pharmacy.

Category: Residency

Title: Levetiracetam vs. lacosamide for seizure prophylaxis

Purpose: Levetiracetam is a common anti-epileptic drug (AED) used for seizure prophylaxis in patients with neurologic trauma. At the University of Missouri Hospital, the use of lacosamide for seizure prophylaxis has recently increased due to suspected recurrence of CNS adverse effects with levetiracetam therapy. The purpose of this study is to determine whether lacosamide is associated with less CNS events when compared to levetiracetam for seizure prophylaxis in patients with traumatic brain injury (TBI) or intracranial hemorrhage (ICH).

Methods: This retrospective, single-center study includes patients >18 years old admitted to the hospital who received levetiracetam or lacosamide for seizure prophylaxis from July 1, 2015 to September 30, 2016. Neurologic indications for seizure prophylaxis include TBI and ICH. The study excludes patients if they were diagnosed with an underlying seizure disorder, on AED therapy prior to admission, or if seizure prophylaxis involves a brain mass or craniotomy. The primary outcome is a composite safety endpoint of CNS adverse events including somnolence, fatigue, agitation, anxiety, irritability, depression, and altered mental status. Secondary endpoints include incidence of seizures, mean number of days in the hospital, and mean number of days in the intensive care unit (ICU). The incidence of CNS adverse effects in patients on lacosamide and levetiracetam will be analyzed using chi-square. Mean time (in days) of hospital and ICU length of stay will be analyzed with the student's two-tailed t-test.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Stephanie Hipp, PharmD

Organization: University of Missouri Health Care

Authors: Stephanie Hipp, PharmD, PGY1 Pharmacy Resident, University of Missouri Health Care; Ashley McCormick, PharmD, BCPS, Clinical Pharmacy Specialist, University of Missouri Health Care; Jennifer Hedgecorth, PharmD, BCPS, Clinical Pharmacy Specialist, University of Missouri Health Care.

Category: Residency

Title: Pharmacist interventions in the emergency department and associated medication error prevention and cost avoidance

Purpose: To perform a descriptive analysis of pharmacist interventions in the emergency department and the associated cost avoidance from medication error prevention. Primary objective is to describe types of pharmacist interventions made in the emergency department and the secondary objectives are to report the potential cost avoidance associated with types of pharmacist interventions and evaluate the usefulness of retrospective pharmacist order review.

Methods: Pharmacist interventions will be documented by a pharmacist who is on-site performing retrospective order review in the emergency department. The interventions will be documented in the electronic medical record, EPIC software, using a customized intervention that will be designed for use by pharmacists only in the emergency department. Epic intervention (I-vent) activity is customized to capture accepted interventions and I-vents prompted by order review are linked to associated orders. When a pharmacist makes an intervention the name of the I-vent is SLH ED Research Only and the subtype field lists all of the different types of interventions. Based on the intervention chosen the value field will auto-populate with the associated cost avoidance value. The types of interventions and associated cost avoidance values per unit are: ADE Prevention (Major) \$2,200, Medication Reconciliation (ADE Major) \$2,200, Medication History \$642, ADE Prevention (Minor) \$220, Medication Reconciliation (ADE Minor) \$220, Medication Teaching/Discharge Education \$208, Dose Adjustment by Pharmacy \$112, Pharmacokinetic Consult \$100, Drug Information (Major) \$100, Antibiotic Optimization \$90, New Therapy Recommended \$75, Drug Information (Minor) \$20, and Clarify Drug Order \$0. The cost avoidance values are calculated utilizing Action-OI values. All data extracted from the I-vent will be recorded without patient identifiers and an I-vent report will be generated into an EXCEL spreadsheet. Data will be used to demonstrate the value of pharmacists in the emergency department at Saint Luke's Hospital.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Lynsee Lanners, PharmD

Organization: Saint Luke's Hospital of Kansas City

Authors: Lynsee R. Lanners, PharmD, PGY1 Pharmacy Practice Resident, Saint Luke's Hospital of Kansas City; Stephanie A. Burton, PharmD, BCPS, Clinical Pharmacist II, Saint Luke's Hospital of Kansas City; Tyler E. Barnes, PharmD, BCPS, Clinical Pharmacist II, Saint Luke's Hospital of Kansas City; Lindsay R. Massey, PharmD, MS, BCPS, Pharmacy Operations and Medication Safety Manager, Saint Luke's Hospital of Kansas City.

Category: Residency

Title: Evaluation of Sugammadex Use for Neuromuscular Blockade Reversal at an Academic Medical Center

Purpose: Sugammadex (Bridion®) is the only FDA-approved medication for immediate neuromuscular blockade reversal by non-depolarizing neuromuscular blockade agents, rocuronium and vecuronium. The mechanism of action is sequestering free molecules of the drug into a complex; thereby, reducing free muscle relaxant concentration and causing a rapid offset of neuromuscular blockade. The dose of sugammadex depends on the intensity of block administered to the patient, with 2 mg/kg single dose utilized for moderate block reversal and 4 mg/kg single dose for deep block reversal. Dosing is based on actual body weight, although administration based upon adjusted body weight in obese patients has been successfully described. Sugammadex has shown greater effectiveness at reducing train of four recovery time in three trials compared to neostigmine ± glycopyrrolate. Adverse reactions reported in phase III studies were comparable between sugammadex and neostigmine; the most common reactions included: procedural pain, nausea, and vomiting. The group purchasing organization cost for University of Missouri Health Care (MUHC) for a 200 mg vial of sugammadex was comparable to glycopyrrolate 1 mg + neostigmine 10 mg. Sugammadex was approved for use with restrictions at MUHC, defined as medication that requires certain criteria to order or is restricted to specific locations or providers. Preferred use of actual body weight, a consideration for capping an initial dose of 200 mg and limitation to anesthesia were the authorized criteria for sugammadex use. The purpose of this study is to evaluate the use and cost analysis of sugammadex at MUHC.

Methods: A retrospective chart review was conducted for adult patients that received at least one dose of sugammadex at MUHC from October 1, 2016 to December 31, 2016. Prisoners and pregnant patients were excluded from the study. A sampling of 250 patients were randomly selected for evaluation. Patient demographic information, sugammadex dose(s), and neuromuscular blockade agent used for the procedure were collected from each patient's electronic medical record. The primary outcome was the number of sugammadex doses administered based on the patient's actual body weight. Secondary outcomes included: number of patients that required an additional "rescue" dose and cost-analysis of use compared to neostigmine/glycopyrrolate.

Results: Research in Progress. To be presented at meeting.

Conclusions: Research in Progress. To be presented at meeting.

Submitting Author: Jennifer Wiederrich, PharmD

Organization: University of Missouri Health Care

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