Poster #: 1

Category: Original - Research in Progress

Title: Impact on Missing Medications by Using "Load on Demand" with Automated Dispensing Machines

Abstract:
Purpose: 'Load on Demand' (LOD) is the function of adding new medications to automated dispensing machines (ADM), if not already stocked, immediately after new orders are verified by a pharmacist. This study assessed the impact of LOD on medication security, availability of medications at the point of care, requests for replacement of missing medications, and the number of dispensed medications associated with the current system using 24-hour medication fills.

Method: This study involved a 628 bed medical center hospital with 125 ADMs and complete pharmacy services provided 24 hours a day. Implementation of LOD and data collection was conducted on adult patient units from August 1, 2017 to February 28, 2018 (7 months). Data collection included number of ADM dispenses, number of medications included in 24-hour medication fills, and number of missing medication requests from patient care units.

Results: Missing medication doses per week decreased from a baseline of 354 to a 3-month average of 238, or 32.8%. Twenty-four hour medication fills decreased from 379 to 81 for a 78.6% reduction. ADM dispenses increased from 72% to 90%. Reduction in doses dispensed using the 24-hr medication fills along with increased ADM dispenses resulted in improved medication security. These results were achieved with no change in ADM stock-outs.

Conclusion: This study shows that LOD reduces missing medications and improves medication security with no increase in staff and minimal change in workflow.

Submitting Author: Marilyn Garrett

Organization: OSF Saint Francis Medical Center

Authors: Marilyn E Garrett, CPhT Pharmacy Technician Supervisor OSF Saint Francis Medical Center

Poster #: 2

Category: Original - Research in Progress

Title: Evaluating the effects of dexmedetomidine in addition to a standard benzodiazepine protocol in patients with alcohol withdrawal admitted to the intensive care unit

Abstract:
Purpose: Alcohol withdrawal develops upon abrupt discontinuation of alcohol exposure. Severe withdrawal may include development of agitation, seizures, and delirium tremens. Patients experiencing alcohol withdrawal symptoms are frequently monitored using the Clinical Institute Withdrawal Assessment for Alcohol, revised (CIWA-Ar) scale. This scale is utilized to rank alcohol withdrawal severity. The World Health Organization recommends benzodiazepines as the mainstay of alcohol withdrawal treatment(1). Occasionally, benzodiazepines do not provide adequate symptom relief and patients need additional sedation. The purpose of this study is to compare clinical outcomes between those who receive benzodiazepines alone and those who receive benzodiazepines and dexmedetomidine for alcohol withdrawal.

Methods: This single-center retrospective chart review has been approved by the local Institutional Review Board. Patients admitted to any intensive care unit (ICU) between July 1, 2015 and July 31, 2017 with a diagnosis of alcohol withdrawal syndrome or delirium tremens and initiated on the CIWA protocol will be included. Data will be collected and reviewed based on two groups: those who received benzodiazepines utilizing the CIWA-Ar protocol compared to those who received benzodiazepines utilizing the CIWA-Ar protocol with the addition of dexmedetomidine. Patients will be excluded based on age less than 18 or greater than 89 years, currently pregnant or breastfeeding, those with known allergies to the study medications, or fewer than five CIWA-Ar scores documented. The primary outcome being evaluated is the time to achieve CIWA-Ar score of less than 16 during ICU stay. Secondary outcomes include maximum change in CIWA-Ar score, time to achievement of CIWA-Ar score less than 9, hospital length of stay, ICU length of stay, average Richmond Agitation-Sedation Scale (RASS) score, incidence of delirium tremens, and total cost. Safety endpoints that will be evaluated are hypotension, bradycardia, respiratory depression, and incidence of intubation.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Sarah Wagner

Organization: Memorial Medical Center

Authors: Sarah Wagner, PharmD, PGY-1 Pharmacy Practice Resident, Memorial Medical Center Megan Metzke, Pharm.D., BCPS, Critical Care Clinical Pharmacist, Memorial Medical Center Billee John, Pharm.D., BCPS, Staff Pharmacist, Memorial Medical Center Don Ferrill, Pharm.D., BCPS, Manager, Pharmacy Education & Clinical Services, & PGY-1 Residency Director, Memorial Medical Center

Poster #: 3

Category: Original - Research in Progress

Title: Evaluation of acute kidney injury with mannitol versus hypertonic saline in the treatment of elevated intracranial pressure

Abstract:
Purpose: In the neurocritical care population, management of elevated intracranial pressure is crucial to reduce morbidity and mortality. A pharmacologic option is hyperosmolar therapy with mannitol or hypertonic saline, but guidelines do not have a preferred agent. Studies have shown a risk of acute kidney injury with hypertonic saline, a concern established for mannitol. History of acute kidney injury can affect prognosis and progression to chronic kidney disease. No studies have compared the safety of these agents, and due to their effects on the kidneys, this study aims to evaluate the incidence of acute kidney injury with hypertonic saline and mannitol.

Methods: This study will be submitted to the Institutional Review Board for approval. A retrospective chart review will identify patients with traumatic brain injury, intracerebral hemorrhage, subarachnoid hemorrhage, ischemic stroke, malignant MCA syndrome, or cerebral edema who have been treated with mannitol or 3% hypertonic saline for elevated intracranial pressure. Exclusion criteria include patients with end stage renal disease or acute kidney injury upon admission and patients 17 and younger. Any patient who received greater than 24 hours of mannitol prior to hypertonic saline or hypertonic saline prior to mannitol will be excluded. The following baseline data will be collected: age, gender, blood pressure, electrolyte levels, acute physiology and chronic health evaluation (APACHE) score, Glasgow Coma Scale, and duration of hyperosmolar therapy. Past medical history collected will include diabetes, heart failure with reduced ejection fraction, chronic kidney disease, and hypertension. Data about concurrent nephrotoxic agents and vasopressor use will also be obtained. The primary outcome will be the incidence of acute kidney injury as defined by the Kidney Disease Improving Global Outcomes guidelines. Secondary outcomes include stage of acute kidney injury, length of stay, return to baseline renal function, dialysis requirements, and incidence of hypotension. A separate multivariate logistic regression analyses for acute kidney injury will be performed to identify predictors from the following: moderate hyperchloremia, hypernatermia, days with serum sodium >145 mmol/L, metabolic acidosis, low serum bicarbonate, elevated osmolarity, elevated osmolar gap, and percent rise of the following in the first three days of therapy: sodium, chloride, serum osmolarity, and osmlar gap.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Rina Patel

Organization: Memorial Medical Center

Authors: Rina Patel, PharmD, PGY1 Pharmacy Practice Resident, Memorial Medical Center Katelyn Conklen, Pharm.D., BCPS, Critical Care/Trauma Clinical Pharmacist, Memorial Medical Center Don Ferrill, PharmD, BCPS, Manager, Pharmacy Education & Clinical Services & PGY-1 Residency Director, Memorial Medical Center

Poster #: 4

Category: Original - Research in Progress

Title: Impact of Ketamine in the Management of Painful Sickle Cell Disease Vaso-Occlusive Crisis

Abstract:
Purpose: Painful vaso-occlusive crises (VOC) are the hallmark symptom associated with adult sickle cell disease (SCD) often refractory to standard treatment. Opioids while considered the mainstay of therapy, often offer little relief, even in the setting of escalating doses. These characteristics make caring for these patients challenging and a set up for rapid onset opioid induced hyperalgesia (OIH).

The NMDA-receptor has been implicated as a driver in the development of OIH resulting in downregulation of the mu-opioid receptor, and thus refractoriness to traditional mu-opioid agonists. Ketamine a non-competitive NMDA receptor antagonist has demonstrated analgesic properties, and reported to potentially counteract these neuromodulatory changes observed in OIH. At subanesthetic doses, ketamine can help to reduce central sensitization and recouple the effects of opioids in the spinal cord to reduce opioid exposure and improve analgesic effects. Ketamine has demonstrated positive effects in cancer pain and surgical pain management as an adjuvant to opioids to help control pain, but there is little published data surrounding the use of ketamine in SCD patients. The purpose of this study is to evaluate whether the use of ketamine as part of the treatment for VOC will impact length of stay as well as contribute to the body of literature available regarding efficacy and safety of ketamine in adults with SCD with VOC pain.

Methods: This single-center, retrospective, observational study has been approved by the UCM Institutional Review Board. The UCM electronic medical record was utilized to identify the study population of adult patients 18 years of age and older admitted to the UCM adult hospital that had a diagnosis of vaso-occlusive crisis and received a ketamine infusion to help manage their pain from January 1, 2014 through June 30, 2017. Twenty-four admissions were included in the analysis from 12 unique patients.

Results: The primary endpoint comparing the length of stay when ketamine was employed compared to previous admissions where the same patient did not receive ketamine was numerically lower in the admission where ketamine was used but did not reach statistical significance (13.2 days vs 16.3 days, p=0.263). Secondary endpoints evaluating opioid doses 24 hours prior to starting ketamine versus the first 24 hours of ketamine use (1905.2 mg vs 1339.9 mg, p=0.014) as well as the opioid doses 24 hours prior to starting ketamine versus 24 hours after stopping ketamine (1905.2 mg vs 1140.4 mg, p=0.0084) were both significantly lower in patients after receiving ketamine. All opioid doses are reported in oral morphine equivalents. Time to next admission versus time since previous discharge was numerically longer after the admission where patients received ketamine, but this did not reach statistical significance (45.7 days versus 40.3 days, p=0.59).

Conclusions: This study has shown that low-dose ketamine infusions are effective at decreasing opioid usage in addition to standard pain regimens for adult patients admitted for VOC pain.

Submitting Author: Jennifer Froomkin

Organization: University of Chicago Medicine

Authors: Jennifer Froomkin, Pharm.D.; Randall Knoebel, Pharm.D., BCOP; David Dickerson, M.D.; Hailey Soni, Pharm.D., BCPS; Angela Kerins, Pharm.D., BCPS; Jennifer Austin, Pharm.D., BCPS University of Chicago Medicine, Chicago, Illinois

Poster #: 5

Category: Original - Research in Progress

Title: Time Within Therapeutic Range: A Comparison of Three Tacrolimus Formulations in Renal Transplant Recipients

Abstract:
Purpose: To compare three formulations of tacrolimus (TAC) and assess differences in time within therapeutic range (TTR) and variability in levels.

Methods: Renal transplant recipients from 01/01/2013 to 10/01/2017 were retrospectively identified for analysis. Deviation from standard TAC protocol or formulation changes excluded patients. The primary outcome is percentage in TTR (%TTR) over the first 12 weeks post-transplant. Secondary outcomes include: TAC CV%, TAC levels, TAC dose, eGFR, rejection, and patient/graft survival.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Karen Khalil

Organization: University of Illinois Hospital & Health Sciences System

Authors: Karen A. Khalil, PharmD, PGY2 Solid Organ Transplant Pharmacy Resident; Patricia M. West-Thielke, PharmD, Director of Clinical Transplant Research; Alicia Lichvar, PharmD, MSCR, BCPS, Transplant Clinical Pharmacist; Enrico Benedetti, MD, FACS, Warren H. Cole Chair in Surgery, Professor and Head of the Department of Surgery; Shree Patel, PharmD, BCPS, Transplant Clinical Pharmacist All authors affiliated with and employed at University of Illinois Hospital & Health Sciences System.

Poster #: 6

Category: Original - Research in Progress

Title: Impact of psychological debriefing on the mental health of pharmacy residents participating in a 24-hour, in-house clinical pharmacy on-call program

Abstract:
Purpose: The clinical pharmacy on-call program at the University of Chicago Medicine is a 24-hour, in-house service provided by pharmacy residents. The on-call pharmacy resident responds to a variety of emergent clinical scenarios involving adult and pediatric patients. During these shifts the pharmacy resident may experience unfortunate or unanticipated patient outcomes which may lead to higher rates of stress, anxiety, and depression. While higher rates of depression in medical students and residents are well established, there are few studies describing mental health in pharmacy residents. This study aims to assess the impact of a 24-hour, in-house, on-call clinical pharmacy program on pharmacy resident mental health and the effects from the implementation of a formalized psychological debriefing process on stress, anxiety, and depression.

Methods: From June 2017 to June 2018, ten PGY1 pharmacy residents will be evaluated as they participate in a 24-hour, in-house, on-call clinical pharmacy program. Immediately after each shift, pharmacy residents will complete a modified Depression Anxiety Stress Scale (mDASS-21) during their first paired introductory shift, first five independent shifts, midpoint shift, and final shift. The severity of stress, anxiety, and depression will be measured as normal, mild, moderate, severe, or extremely severe. Immediately following the completion of the mDASS-21, pharmacy residents will undergo psychological debriefing with a pharmacy preceptor to discuss difficult situations and their emotional state during their shift. Compiling information from the mDASS-21 and debrief, pharmacy residents will be evaluated to assess resident mental health during the on-call shift. Statistical analysis will be performed using descriptive and univariate inferential statistics.

Results: Research in progress.

Conclusions: Research in progress.

Submitting Author: Kevin Mercer

Organization: University of Chicago Medicine

Authors: Kevin Mercer, PharmD, PGY1 Pharmacy Resident, University of Chicago Medicine; Sajni Patel, PharmD, BCPS, Cardiology Clinical Pharmacy Specialist, University of Chicago Medicine; Samantha Bastow, PharmD, BCPS, Clinical Pharmacy Manager, University of Chicago Medicine; Randall Knoebel, PharmD, BCOP, PGY1 Pharmacy Residency Program Director, University of Chicago Medicine; Hailey Soni, PharmD, BCPS, Internal Medicine Clinical Pharmacy Specialist, University of Chicago Medicine; Laura Lourenço, PharmD, BCPS, Solid Organ Transplant Clinical Pharmacy Specialist, University of Chicago Medicine; Jennifer Austin Szwak, PharmD, BCPS, Internal Medicine Clinical Pharmacy Specialist, University of Chicago Medicine

Poster #: 7

Category: Original - Research in Progress

Title: Impact of a PharmD consult to improve futile medication discontinuation rates in a home hospice program

Abstract:
Purpose: The objective of this study is to determine whether speaking with a hospice pharmacist about futile medications will improve discontinuation rates when compared with speaking with the hospice nurse. Many patients admitted to hospice have polypharmacy, many of which are deemed medically unnecessary. However, there is currently no existing data surrounding the benefit of a pharmacist in the hospice setting in terms of futile medication discontinuation rates / deprescribing. Once the patient is admitted to hospice services, these futile medications may be stopped and replaced with comfort medications. Some of these futile meds have the potential to add to the pill burden and decrease quality of life for a multitude of patients. Common futile medications include maintenance chronic obstructive pulmonary disorder (COPD) inhalers, anticoagulants, vitamins and minerals, anti-hyperlipidemia agents, and acetylcholinesterase inhibitors. The Centers for Medicare and Medicaid Services stipulates all medications must be identified as related or unrelated to the terminal prognosis, and a determination made whether hospice or a third-party payer will cover their cost, often placing unnecessary financial burden on both patients and hospice organizations. Recently a new pharmacist clinical service was launched within our hospice to address the difficulty in futile med discontinuation experienced by the nursing staff. Evaluation of the hospice pharmacist consultation service in discontinuing futile medications is the next phase of the project.

Methods: All patients referred to Hospice of Southern Illinois with an identified futile medication will be randomly assigned to usual medical care (nursing visits) or a PharmD consult where the pharmacist will discuss harms versus realistic benefits of the futile medication with the patient and/or caregiver. After IRB approval and once the study period has ended, the discontinuation rates of these futile medications between a PharmD consult and usual care will be compared. If a patient and/or caregiver requests to speak to the pharmacist, this patient will be counted as a non-discontinuation by the nurse and will not be assigned to either one of the intervention groups.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Amanda Daniels

Organization: Hospice of Southern Illinois

Authors: Amanda M Daniels, PharmD, PGY2 Pain and Palliative Care Pharmacy Resident, Hospice of Southern Illinois Ellen Middendorf, MD, Medical Director, Hospice of Southern Illinois Christopher M Herndon, PharmD, Professor, SIUE School of Pharmacy

Poster #: 8

Category: Encore

Title: Retrospective institutional assessment of vancomycin dosing protocol on the attainment of goal serum trough concentrations in the pediatric setting

Abstract:
Purpose: The primary objective of this study is to determine the clinical efficacy of our institution's vancomycin collaborative practice agreement on goal serum trough concentrations in the pediatric population. Currently, patients receive starting doses of 20 milligrams/kilogram/dose every eight hours. Previous studies have shown this dose acheived goal trough concentrations (10 -20 micrograms/liter) in 37% of patients. Secondary analyses will be conducted to examine vancomycin dosing variations in age groups and BMI-for-age percentiles. Currently, there is little evidence regarding effective doses in these subgroups. This study will help optimize vancomycin dosing in several patient populations.

Methods: This study will be submitted to the Institutional Review Board for approval under exempt status, and will be a retrospective cohort analysis of patient electronic medical records from a children's hospital in central Illinois. Data will be collected from September 1, 2012 to September 1, 2017. Patients will be included if they were between the ages of 31 days and 18 years, received vancomycin per pharmacy dosing recommendations, and had at least one serum trough concentration recorded at the time of the encounter. Patients will be excluded if they were in the NICU at time of trough draw, received vancomycin for procedural prophylaxis, or received doses recommended by non-pharmacy personnel. The primary outcome will be dose at target trough concentration, which will be determined by comparing the initial dose of vancomycin to the dose that obtained goal trough levels. Secondary outcomes will include the number of dose changes to obtain target trough, time to target trough, duration of vancomycin exposure, time to de-escalation/discontinuation, frequency of dosing, frequency of trough achievement with 1st dose, serum creatinine and urine output changes, frequency of acute kidney injury under dosing protocol, and number of held doses or discontinuation due to adverse effects.

Results: Research in progress

Conclusions: Research in progress

Submitting Author: Ashley Walter

Organization: OSF Healthcare St. Francis Medical Center

Authors: Ashley Nicole Walter PGY-1 Pharmacy Resident - OSF Healthcare St. Francis Medical Center and Children's Hospital of Illinois Doctor of Pharmacy - Butler University Bachelor of Science - Purdue University

Poster #: 9

Category: Encore

Title: Use of a dashboard for monitoring clinical pharmacy services in a large medical center

Abstract:
Purpose: A dashboard is a management tool that provides a quick, visual picture with graphic displays or tables depicting select measures and is representative of the functioning of a business entity or division over a period of time. To qualify for use in a dashboard, items being measured should be easy to measure and obtain, reflect desired goals, account for fluctuations in populations, can clearly show current status or trends, and allow for predictions. The purpose of this report is to describe the use of a dashboard used to monitor and set goals for specific clinical services in a large medical center pharmacy department.

Methods: Fourteen measures of clinical pharmacy services in a 616-bed medical center were chosen based on desired hospital improvement targets. Four assessed elements of antimicrobial stewardship (interventions resulting from Emergency Department culture reviews, vancomycin discontinuation in patients with culture-negative neutropenia, antibiotic discontinuation on medical/surgical care unit, and reducing overall usage of piperacillin/tazobactam) and 4 measures assessed patient medication education (renal transplant patients, patients starting warfarin, any patient on anticoagulants, and any education). The remaining were measures of critical International Normalize Ratio values resulting from pharmacy dosing service, analgesia and sedation medication reviews and pro-active interventions, defects associated with admission reconciliation for renal transplant patients, elimination of inappropriate stress ulcer prophylaxis on intermediate and acute neurology units, and parenteral antihypertensive drug selection. Four dashboard items were measured hospital-wide, three focused on the critical care units, two for renal service and the remaining 5 were unit-specific. Target goals for each dashboard measure were based on desired performance and past activity. Fifteen monthly measurements for the 14 activities, adjusted for patient census, were recorded from October 2015 to December 2016. To provide a quick visual status and trend analysis, each monthly box was colored green, yellow or red representing either the specific measure is meeting or exceeding the goal, or is within about 10-20% of the goal, or exceeds 20% of the targeted goal, respectively.

Results: Over the 15 month period, seven of the 14 clinical measures showed no change, 6 met or exceeded their goals, and one showed a trend away from the goal. Two measures essentially met or exceeded theirs goals (All med education and critical INRs) and two failed to meet their goals (SUP discontinuation and antihypertensive selection) for the entire study period. Out of the 189 total monthly measurements, 85 month scores met or exceeded the desired goal (Green), 66 scores did not meet the goals by more than 20% (Red), and 38 scores were within 10% of the desired goals (Yellow). Factors that may have influenced the outcomes include overall workload volume, lower prioritization of these services, and pharmacist limitations in influencing specific outcomes. Review of goals and changes should be considered for measures showing little or no change.

Conclusions: Dashboards provide a unique method of displaying and evaluating the status of a pharmacy's clinical services provided throughout a medical center. This 15-month report displays 14 selected measures that were used by hospital and pharmacy management, including pharmacy staff, to set desired clinical goals and to quickly assess their status over time.

Submitting Author: Ed Rainville

Organization: OSF HealthCare Saint Francis Medical Center

Authors: Ed, C, Rainville, BSPharm, MSPharm, FASHP, Pharmacy Supervisor, OSF HealthCare Saint Francis Medical Center, Peoria, Illinois

Poster #: 10

Category: Encore

Title: Improving compliance with inpatient utilization of medications that have Elements to Assure Safe Use at a large academic medical center

Abstract:
Purpose: To create a standardized compliance process for medications that have Elements to Assure Safe Use (ETASU) at Northwestern Memorial Hospital (NMH).

Methods: The Food and Drug Administration (FDA) website was reviewed in September 2017 to determine which medications on the NMH formulary had ETASU requirements. Further evaluation of the ETASU requirements for the targeted NMH formulary medications was conducted to determine which had relevant inpatient requirements. Internal electronic resources were reviewed to determine what ETASU requirements were already embedded into the medication ordering and verification process. Company REMS programs were also called to verify inpatient ETASU pharmacy requirements.

Results: Review of relevant inpatient ETASU requirements resulted in identification of four formulary medications that warranted modifications to the current institutional process. Uniform actions to improve compliance with ETASU standards were proposed for order entry, pharmacist verification, electronic documentation, and staff education.

Conclusions: A standardized process was created for pharmacists to assess and document ETASU medication requirements within the electronic medical record that will generate improved compliance with ETASU regulations resulting in enhanced patient care for these selected medications.

Submitting Author: Brittany Lee

Organization: Northwestern Memorial Hospital

Authors: Brittany Lee, PharmD Northwestern Memorial Hospital PGY-1 Pharmacy Practice Resident Gerald Elliott, PharmD Northwestern Memorial Hospital PGY-1 Pharmacy Practice Resident Elizabeth Short, PharmD, BCPS, BCCCP Northwestern Memorial Hospital Practice Coordinator, Clinical Services (non-oncology)

Poster #: 11

Category: Encore

Title: Implementation of phone etiquette and triage training in pharmacy technicians at a large academic medical center

Abstract:
Purpose: To implement phone etiquette and triaging techniques into pharmacy technician training to improve nurse, pharmacist, and pharmacy technician satisfaction with phone calls to the Pharmacy Department

Methods: A survey was sent out to pharmacists, pharmacy technicians, and nurses to evaluate the current satisfaction with pharmacy phone etiquette and triaging. A phone etiquette and triaging training program and competency checklist were created and administered to pharmacy technicians working in the central pharmacy at Northwestern Memorial Hospital. A follow-up survey was sent post phone training completion to determine if there were any changes in satisfaction or competency

Results: There were 274 responses to the pre-training survey and 60 responses to the post-training survey. Satisfaction with phone calls to the pharmacy showed improvement after phone call triage training was implemented in regards to: Time assessment Professionalism Competence Overall satisfaction The majority of responders to the first survey were nurses working day shift (67%). The proportion of responders to the second survey was approximately 1/3 each of nurses, pharmacists, and pharmacy techs.

Conclusions: Given the positive results and feedback, we plan to implement a formal phone triaging and etiquette training and competency into pharmacy technician training for both current and future employees in all pharmacy satellites. We also plan to send out a second post-training survey once all technicians have been trained and sufficient time has been passed to determine if improvement is noticed in competence and etiquette.

Submitting Author: Tyler Alverson

Organization: Northwestern Memorial Hospital

Authors: Tyler Alexsandra Alverson, PharmD, PGY1 Resident, NMH **Joanna Urban, PharmD, PGY1 Resident, NMH** Ana Fernandez, CPhT, Pharmacy Practice Coordinator, NMH Noelle RM Chapman, PharmD, Pharmacy Manager/PGY1 Residency Program Director, NMH

Poster #: 12

Category: Original - Research Complete

Title: Evaluation of Outpatient Infusion Medication Safety Monitoring at a Community Teaching Hospital

Abstract:
Purpose: To evaluate the appropriateness of safety monitoring for medications administered at an outpatient infusion clinic after implementing pre-infusion checklists.

Methods: This study is a prospective analysis of laboratory monitoring obtained from newly implemented pre-infusion checklists from subjects receiving high-risk medications at the outpatient infusion clinic. Patients with a scheduled appointment at the infusion clinic to receive abatacept, tocilizumab, vedolizumab, infliximab, zoledronic acid, or rituximab were included in the study. A pharmacist designed checklist was created for each high-risk medication commonly administered at the outpatient infusion clinic. Pre-infusion checklists included recommended safety monitoring such as Hepatitis B surface Antigen (HBsAg) test, tuberculosis (TB) test, liver function test (LFT), complete blood count (CBC), and up-to-date vaccinations. Nursing in-services were given at the outpatient infusion center to introduce the staff to the pre-infusion checklists and encourage their compliance. Once implemented, the infusion clinic nurses completed the pre-infusion checklists approximately 1-2 days before patient's scheduled appointment. The pharmacist reviewed all checklists and lab results to determine compliance with recommended monitoring, contacted providers to obtain missing labs, and coordinated with providers to order lab tests prior to initial and maintenance therapy. The pharmacist communicated to the infusion clinic nurse if an intervention was needed prior to the patient's scheduled infusion. The primary objective of this study was to identify the percentage of medications that were appropriate to dispense before the checklists were implemented compared to the percentage of medications that were appropriate to dispense after the checklist was implemented.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Crystal Dedes

Organization: Advocate Illinois Masonic Medical Center

Authors: Ryan Sayler, PharmD, BCPS Clinical Pharmacist at Advocate IL Masonic Medical Center Crystal Anna Dedes, PharmD, PGY-1 Pharmacy Practice Resident at Advocate IL Masonic Medical Center

Poster #: 13

Category: Original - Research in Progress

Title: Implementation of a Pharmacist-Directed Medication Therapy Management Service for Oral Chemotherapy Patients at an Outpatient Cancer Center

Abstract:
Purpose: The purpose of this study is to develop, implement, and evaluate the impact of pharmacist involvement in patients receiving oral chemotherapy with respect to drug-interactions, dosing adjustments based on laboratory parameters and patient adherence.

Methods: Electronic health records will be used to conduct a retrospective chart review of all oral chemotherapy prescriptions prescribed by oncology physicians at the Creticos Cancer Center from January 1, 2017 through March 31, 2017. Additionally, a prospective review of adult patients prescribed oral chemotherapy will be conducted from December 15, 2017 through March 15, 2018. All prescriptions will be evaluated for proper indication, dosing, drug-drug interactions, pertinent laboratory parameters, appropriate adjustments based on toxicities, as well as documentation for adherence. Problems discovered will be reported to the physician for review. Patients receiving oral hormonal chemotherapy will be excluded from the study. Pharmacist interventions that led to a change in home medications or chemotherapy treatment will be documented. One week following initiation of oral chemotherapy, the pharmacist will follow-up with a phone call to the patient. The patient will be interviewed about indication, dosing, side effects, methods of adherence, and any barriers to treatment. During this call, the patient will receive medication counseling from a pharmacist addressing all pertinent information about their prescription. The patient will be contacted again 28-days after the start of therapy to re-assess understanding of their medication post-pharmacist counseling. Additional information regarding pharmacist time commitment will be collected. Data comparison of historical data versus post–implementation data will be analyzed focusing on the overall impact of pharmacist intervention and patient adherence.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Niree Kalfayan

Organization: Advocate Illinois Masonic Medical Center

Authors: MyChau Nguyen, PharmD - University of Illinois College of Pharmacy, BCOP – Oncology Pharmacist, Advocate IL Masonic Medical Center Niree Kalfayan, PharmD - Midwestern University, Chicago College of Pharmacy, PGY-1 Pharmacy Practice Resident, Advocate IL Masonic Medical Center

Poster #: 14

Category: Encore

Title: Active Pharmacy Student Engagement in Inter-Professional Education

Abstract:
Purpose: Pharmacy students are consistently taught about the importance of patient teaching in order to minimize misuse of medications and to improve awareness and management of selected side effects associated with drug therapy. The evaluation of inter-professional learning has been examined in multiple studies finding an increase in patient baseline knowledge and improving collaboration in the work force. This project was designed to identify the strengths and weaknesses of inter-professional medication teaching conducted by fourth year pharmacy students for their "patients" who were first year physician assistant students.

Methods: During orientation week, PA students begin a week-long learning experience designed to introduce concepts about medication adherence and collaborative practice. PA students receive a 'prescription' from a 'provider,' with a written note explaining to the student, in the role of "patient," that he/she is to start (a) medication(s) based on recent lab work. As "patients," the PA students, were purposely told little about their condition(s), prescribed medication(s) or clinical purpose(s). Patients not understanding their condition(s) or medication(s) is a common theme in pharmacy practice. The PA student "patients" took their 'prescription(s)' to advanced practice student pharmacy students, acting as "pharmacists," to be 'filled.' Pharmacy students counsel their "patients" about the newly prescribed medication(s), common indications, what to expect, when to discontinue or when to contact the prescriber. The pharmacy students also answered questions from their "patients." The PA students were instructed to follow "pharmacists" recommendations and to continue to take their medication(s) until they returned to their provider for follow-up. A survey designed to assess compliance and identify medication understanding was sent to all students, with separate versions for each discipline. 3.

Results: This activity was well received by all students. Three fourth year pharmacy and thirty physician assistant students (100%) participated in this experience. There were eighteen questions specific to each discipline as well as a common survey. All questions were original to the activity. We found that 80% of the PA orientation students had never participated in an active inter-professional activity. We also found favorable results (75% Approval) for collaboration and understanding of the role of other healthcare professionals. The activity did, however, identify a few, yet important, gaps in medication information communicated by the pharmacy students to their "patients." Pharmacy students, in general, provide too much information (47%), and tend to offer boiler plate rather than individualized advice (70%). We found that one student often (50%) omitted critical information about the medications, and also neglected to introduce her/himself. Most students (75%) indicated this activity was a useful and important learning activity. Just about 50% of students found it difficult to adhere for 2 weeks to a simple medication schedule involving 2 medications each taken no more often than twice a day. 4.

Conclusions: We plan to continue to update this activity by making changes per the survey results, increasing the number of pharmacy student involvement, incorporating an inter-professional reading prior to the start of the activity and a debrief at the end of the activity.

Submitting Author: Jorie Kreitman

Organization: Rosalind Franklin University of Medicine and Science

Authors: Jorie F Kreitman- PharmD Candidate 2018 Rosalind Franklin University of Medicine and Science Michael A Fotis, RPh - Northwestern University Feinberg School of Medicine-Faculty Department of Medical Education, Physician Assistant Program Kristine M Healy MPH, PA-C Northwestern University Feinberg School of Medicine -Associate Director Physician Assistant Program, Assistant Professor - Medical Education

Poster #: 15

Category: Encore

Title: Identifying Barriers to Performance of a Newly Implemented Spontaneous Awakening Trial Protocol

Abstract:
Purpose: The purpose of this study was to evaluate compliance with the newly implemented SAT paired protocol and identify barriers in daily performance.

Methods: We conducted a retrospective cohort study of patients admitted to the medical ICU (MICU) that required mechanical ventilation for at least 24 hours to assess compliance with the paired SAT/SBT protocol. SBTs were routinely completed and documented by respiratory care providers prior to implementation of the SAT screening and performance process so our analysis focused on the SAT portion of the process. Bedside nurses caring for the patient conducted a safety screen to rule out the presence of agitation, seizures, substance withdrawal, use of paralytics, active myocardial ischemia, or elevations in intracranial pressure. If all criteria were deemed to be absent, the nurse discontinued all continuous sedatives except those necessary for pain control. Patients were deemed to have failed the SAT if any of the following were present in the 4 hours following SAT initiation: agitation, tachypnea, respiratory distress, hypoxia, or cardiac arrhythmia. If a patient developed any of the SAT failure criteria, sedatives and analgesics were re-initiated at 50% of the prior infusion rate. Patients that did not develop these criteria in the 4 hour period following the screen were deemed to have passed the SAT. We identified steps which were not completed within the SAT process and categorized them as one of the following potential barriers: missing SAT orders, SAT safety checklist not completed, SAT safety screen not completed accurately, SAT safety screen failure met, failure to perform SAT, failure to document SAT, or SAT failure criteria met. Data is presented using appropriate descriptive measures including n (%) or mean (+/- standard deviation).

Results: SATs were ordered in 25% of total days evaluated. When SAT orders were placed, SAT safety checklists were completed in 50.6% of patients. These safety checklists were completed accurately 81.6% of the time. Regardless of SAT order presence, SATs were performed in 65.1% of total days evaluated. As expected, patients who met failure criteria (12%) within the safety checklist did not receive a SAT. Of the SATs performed, only 14.2% of them were documented.

Conclusions: Major areas of noncompliance are present in our current protocol with the largest being patients missing SAT orders. Without these orders, there is no prompt to ensure accurate screening, performance and documentation of SATs. Future directions include thorough reeducation of healthcare personnel, primarily physicians and pharmacists, to stress importance of SAT orders and potential order set modifications including an automatic order within existing sedation order sets.

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Poster #: 16

Category: Encore

Title: Evaluation of standardized drug concentrations for intravenous adult continuous infusions

Abstract:
Purpose: American Society of Health-System Pharmacists (ASHP) in conjunction with the FDA is leading the Standardize 4 Safety initiative, a method to prevent patient harm and death from medication errors. The goal of Standardize 4 Safety is to implement standardized concentrations and dosing units for various dosage forms as recommended on the ASHP website. Northwestern Memorial Hospital (NMH) supports Standardize 4 Safety and the goal of this project is to compare current NMH adult continuous infusion concentrations to ASHP's recommended concentrations and analyze the potential impact of adopting their recommendations.

Methods: Study Design: retrospective, clinical, operational and cost analysis. A gap analysis was performed on adult IV infusion concentrations used at NMH to determine how they vary from the ASHP-recommended concentrations. The IV medications with variations to be studied include: amiodarone, bumetanide, dobutamine, dopamine, epinephrine, labetalol, nicardipine, nitroglycerin, norepinephrine, phenylephrine and rocuronium. Data was collected from August 1st, 2016 to August 1st, 2017 on the total number of infusion bags dispensed per patient order, start and stop times for the IV medication, and the dose or rate. From this information, the number of bags dispensed per year for each IV adult infusion was calculated based on current NMH concentrations. The number of infusion bags needed with the new ASHP recommended concentrations to dispense the same total dose per year was predicted. The difference in number of bags dispensed and change in volume the patient would receive with ASHP recommended concentrations was calculated. The annual drug acquisition cost difference was calculated based off of commercially available products compared to compounded products and medication preparation time. Administration and nursing workflow changes and training was also evaluated to assess the impact on hospital operations.

Results: If all analyzed ASHP recommended concentrations were adopted: 33% would result in cost savings. 54% would decrease the number of bags dispensed per day allowing for fewer interruptions in therapy, less burden on nursing workflow, and fewer dispenses for pharmacy staff. 62% would result in a decrease in infusion volume. 55.6% of ASHP recommended concentrations included in this analysis are commercially available. Commercially available products provide longer stability than compounded medications, thus decreasing waste and pharmacy compounding requirements. Adopting the ASHP recommended concentrations would not cause a change in peripheral versus central administration except for the increased concentrations recommended for amiodarone and phenylephrine, where only central administration is recommended.

Conclusion: Based on this analysis, we would recommend considering adoption of ASHP's recommended concentrations for amiodarone, dobutamine, dopamine, epinephrine, labetalol, and phenylephrine. If we adopted these, the Total Net Cost Difference: - $768 per year and Total Net Dispense Difference: -6.6 bags per day.

Submitting Author: Brittany Huff

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Poster #: 17

Category: Encore

Title: Implementation and evaluation of an error and complaint reporting system in a specialty and ambulatory care pharmacy

Abstract:
Purpose: To assess areas for improvement within the pharmacy and then focusing to improve the error and complaint reporting system by restructuring the process to create a workflow that effectively evaluates and addresses the problems within the specialty pharmacy

Methods: The objective of the project was completed by identifying the highest need for intervention based on the FY-2017 error and complaint reports, implementing a new method for collecting these error and complaint reports, then analyzing the process and comparing it with the pre- implementation data. Evaluation of the quality procedures and risk management within the pharmacy was done by reviewing the error reporting and URAC standards. Implementation of a new method for collecting the errors and complaint forms was be based on feedback from the staff, surveys were conducted asking about the barriers and issues to completing the complaint and error reports. The responses guided the development of the implementation of a different workflow for reporting errors. The data was analyzed and guided the development of the implementation of different workflow for reporting errors.

Results: Within the 216 total ISMP objectives, 15% were non-compliant and 47% of those were within the Quality Procedures & Risk Management category. The specialty pharmacy has approximately 64% fully implemented activities to all patients, prescriptions, drugs, or staff within the quality processes and risk management characteristic. Biggest barriers to staff reporting include time constraints and lack of understanding of “what” to report. The total number of complaint reports for the 2017 fiscal year was sixty averaging five reports per month. There were three months that did not have any incidences reported. Of the complaints reported, 22% were due to shipping, 28% due to delivery, and 20% due to incorrect processing

Conclusions: Both the quality and quantity of the complaints and error reports were lower than expected for the fiscal year. Implementing a new workflow system to better collect and analyze this data will overall improve the quality and safety for patients.

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Poster #: 18

Category: Encore

Title: Feasibility and impact of bortezomib batching in a high-volume outpatient oncology clinic

Abstract:
Purpose: To evaluate the impact of preparation of bortezomib doses in advance (batching doses) on patient throughput as well as nursing and patient satisfaction

Methods: Evaluate current bortezomib volume and bortezomib administration trends -Prepare bortezomib doses as a single batch in advance on the morning of expected administration -Evaluate time from order verification to drug administration compared to historical controls prior to bortezomib batching -To determine appointment duration -Determine waste and financial implications

Results: Time from pharmacist verification to nursing administration was used as a surrogate endpoint ~10 minutes were saved on average per patient in intervention arm Bortezomib appointments have since been decreased from 90 minutes to 60 minutes.

Conclusions: With this change, we estimate on average: ~54 patients per week; 81 hours of chair time per week; Gained chair time 27 hours per week. ~ 5 hrs per day (Figure 3) Approximately 5% of bortezomib was wasted during batching intervention compared to 1% waste in the control arm. Future Directions Evaluation of nursing workflow Limitation of study: no direct measurement from time of pharmacy dispense to nursing administration Evaluate nursing processes to determine delays in administration Survey of patients and nurses to evaluate satisfaction with more efficient pharmacy preparation of doses Potential for incorporation of extended stability of bortezomib to batched doses Batching of other medications in oncology clinic

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Poster #: 19

Category: Student - Research in Progress

Title: Amoxicillin dosing frequency in pediatric patients diagnosed with community acquired pneumonia and its effect on hospital readmission rates.

Abstract:
Purpose: According to current guidelines, high dose amoxicillin is first-line oral therapy in infants and children >3 months of age. Prior to the development of widespread pneumococcal resistance in the 1990s, a dose of 40-45 mg/kg/day divided into three doses was sufficient to eradicate this pathogen. To overcome new resistance patterns, high dose amoxicillin (90 mg/kg/day) divided into two doses was shown to be necessary in acute otitis media caused by S. pneumoniae. Prospective trials examining the dosing frequency of high dose amoxicillin in pediatric pneumonia have not been conducted. However, the every 12-hour dosing regimen was carried over from acute otitis media studies. If the amoxicillin concentration present in the lung tissue is above the MIC of the infecting pneumococcus pathogen for approximately 40% of the dosing interval, then this will lead to eradication of the pathogen. According to the Monte Carlo simulations conducted by researchers at the University of California in San Diego, if a child is infected with a relatively resistant strain of S. pneumoniae with an MIC of 2.0 mcg/mL and treated with amoxicillin 90 mg/kg/day divided into two doses then only 65% of children will reach the PK-PD target associated with cure. On the other hand, if the child with the same relatively resistant strain receives 90 mg/kg/day divided into three doses, the PK-PD target will be achieved in about 90% of children. Although current standard of practice is to empirically treat pediatric CAP patients with high dose amoxicillin divided into twice daily dosing, the rise of antibiotic resistance can continue to complicate treatment in the future if antibiotic stewardship is not taken into account. Using the most appropriate dosing regimen for the shortest effective duration must be a priority to minimize antimicrobial resistance. The purpose of this study is to describe current practice patterns and to evaluate the implications on readmission rates of two times daily dosing versus three times daily dosing of high dose amoxicillin in patients seen at the University of Chicago Medicine.

Methods: This study is a single-centered, retrospective chart review that will be conducted at University of Chicago Medicine. Inclusion criteria: • Patients that are 3 months to 18 years of age. • Patients who were diagnosed with community acquired pneumonia and treated with high dose amoxicillin. Exclusion criteria: • Patients less than 3 months of age. • Patients diagnosed with any other acute conditions besides community-acquired pneumonia. • Patients on hemodialysis or CrCl <10 ml/min. Data collection through electronic medical record review: age, weight, race, height, BMI, CrCl, immunization history, comorbidities, any O2 requirement and duration of O2 requirement, any recent antibiotic exposure, amoxicillin duration of therapy, amoxicillin dose, amoxicillin formulation, amoxicillin frequency, any concomitant antibiotic therapy and duration of therapy, number of days between discharge and readmission, length of stay after readmission, and respiratory viral panel (RVP) results. Statistical Analysis: • Fisher's Exact for nominal data including race, immunization history, comorbidities, recent antibiotic exposure, and respiratory viral panel (RVP) results. • Mann-Whitney for continuous data including age, weight, height, BMI, CrCl, O2 requirements and duration of O2 therapy, number of days between discharge and readmission, and length of stay after admission.

Results: Research in Progress

Conclusion: Research in Progress

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Poster #: 20

Category: Student - Research in Progress

Title: Pneumococcal Vaccination in Pediatric Cystic Fibrosis Patients

Abstract:
Purpose: The purpose of this quality improvement project is to provide pediatric cystic fibrosis (CF) patients with Pneumovax23 (PPSV23) and when appropriate, completion of their Prevnar (PCV13) vaccination series at Cardinal Glennon Children's Hospital CF Clinic. There is currently a lack of administration of Pneumovax in this patient population. This project is also designed to educate the CF clinic physician team regarding the following information. Patients with CF are generally at higher risk of contracting pneumococcal infection and are candidate for vaccination with Pneumovax due to the comorbidities associated with their condition. Pneumovax is approved for use in at risk patients aged 24 months and older. Patients at increased risk include those with a history of chronic lung disease. The definition of chronic lung disease for this benefit group includes those with asthma that have been treated with a long term course of corticosteroids as well as patients with chronic obstructive pulmonary disease and emphysema. This information may be reasonably extrapolated this patient population as many of these patients have a concurrent history of asthma and have been treated with long term courses of inhaled or oral corticosteroids. Inclusion criteria includes diagnosis of CF, status as a current CF clinic patient and age greater than two years old. Patients aged two to twenty-one years old were included in this project.

Methods: Data will be collected through review of the patient's electronic medical record, the Cystic Fibrosis Foundation patient registry and other immunization reporting databases, when possible. Consultation with physician's offices beginning in late January will also be used to assess any previous Pneumovax administration and pertinent vaccination history. The CF team physicians will be given education regarding indications and guidelines for PPSV23 administration in pediatric patients greater than two years old, as well as indications for PCV13 catch up vaccinations. After time for implementation of vaccination protocol in eligible patients a review of vaccination history will be completed to confirm if vaccination was given. IRB approval was granted through Cardinal Glennon Children's Hospital and Southern Illinois University Edwardsville School of Pharmacy, through collaborative agreement.

Results: Research in Progress

Conclusions: Research in Progress

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