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.

Submitting Author: David Antoine

Organization: Northwestern Memorial Hospital

Authors: DA Antoine Pharm.D, Northwestern Memorial Hospital, CT Makowski Pharm.D, Northwestern Memorial Hospital, AT Ammar Pharm.D, BCPS, BCCCP, Northwestern Memorial Hospital, CJ Cooper,

Pharm.D, BCPS, BCCCP, Northwestern Memorial Hospital, BD Lizza, Pharm.D, M.S., BCPS, BCCCP, Northwestern Memorial Hospital

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

Organization: Northwestern Memorial Hospital

Authors: Sarah Schaidle, PharmD, Brittany Huff, PharmD, Kelsea Caruso, PharmD, Katie Gauen, PharmD, Lara Ellinger, PharmD, BCPS Northwestern Memorial Hospital

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.

Submitting Author: Bridget Dolan

Organization: Northwestern Memorial Hospital

Authors: Kayla Hoogendoorn PharmD, MPH, Northwestern Memorial Hospital Bridget Dolan PharmD; Northwestern Memorial Hospital Nadine Isho, PharmD; Northwestern Medicine Specialty Pharmacy

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

Submitting Author: Alison Svoboda

Organization: Northwestern Memorial Hospital

Authors: Amanda Finch, PharmD, Alison Svoboda, PharmD, Farah Barada, PharmD Northwestern Memorial Hospital

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

Submitting Author: Linh Le

Organization: University of Chicago Medicine

Authors: Linh T Le, PharmD Candidate, Midwestern University Chicago College of Pharmacy Avani J Patel, PharmD Candidate, Midwestern University Chicago College of Pharmacy H Barret Fromme, MD, Associate Professor of Pediatrics at University of Chicago Medicine Shannon M Rotolo, PharmD, BCPS, Clinical Pharmacy Specialist at University of Chicago Medicine

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

Submitting Author: Devin Dinora

Organization: Southern Illinois University Edwardsville - School of Pharmacy

Authors: Devin R Dinora, Pharm.D. Candidate, SIUE School of Pharmacy Lisa Lubsch, PharmD, BCPPS, AE-C, SIUE School of Pharmacy, SSM Cardinal Glennon Children's Hospital