EVALUATION OF THE TRANSITION FROM INTRAVENOUS TO SUBCUTANEOUS INSULIN IN ADULT INTENSIVE CARE UNIT (ICU) PATIENTS AT A QUATERNARY CARE TEACHING HOSPITAL
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Background: Hyperglycemia in critically ill patients is associated with increased hospital lengths of stay and significant morbidity and mortality. Because of these risks, intensive therapy with intravenous (IV) insulin is utilized to maintain glycemic control, with transition to a subcutaneous (SubQ) insulin regimen when patients are clinically stable. Successful transition to SubQ insulin is important to obtain optimal glycemic control. At North Shore University Hospital, new insulin infusion protocols for hyperglycemia were implemented in May 2014 for the medical, surgical, & neurosurgical intensive care units and the cardiac care unit. Purpose: The purpose of this study is to assess whether or not the new protocols help to maintain glycemic control in critically ill patients. Methods: The electronic medical record will be used to retrospectively identify patients admitted to the ICUs and initiated on IV insulin infusion between May 2014 and February 2015. The primary endpoints are adherence to unit-specific protocols, timing of initiation of SubQ insulin and discontinuation of IV insulin, appropriateness of the dose of SubQ insulin, achievement of target blood glucose levels, incidence of adverse events, and time to first adverse event. Secondary endpoints are lengths of stay (LOS) in ICU and total hospitalization. Standard methods for proportions will be used and associated 95% confidence intervals will be calculated to estimate the proportions of interest. Adverse events will be tabulated and summarized using descriptive statistics. LOS will be analyzed using standard methods for survival analysis. Kaplan-Meier plots will be generated according to compliance group and compared using the log-rank test. This study was approved by Institutional Review Board of the North Shore-LIJ Health System. Results and final conclusions are pending at the time of abstract submission.

EFFICACY AND SAFETY OF HIGH-DOSE HEPARIN PROPHYLAXIS FOR THE PREVENTION OF VENOUS THROMBOEMBOLISM IN OBESE HOSPITALIZED PATIENTS
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Background: Venous thromboembolism (VTE), a term incorporating both deep vein thrombosis (DVT) and pulmonary embolism (PE), is one of the most common and preventable causes of death in the United States, accounting for 200,000 deaths annually. Hospitalization increases the risk of VTE eightfold, with 50-75% of events occurring while patients are on a medical service. Several studies have shown that obese patients are at 2-3 times greater risk for VTE, however, the most recently published guidelines from the American College of Chest Physicians do not provide a specific recommendation regarding the prevention of VTE in this population. Obese patients have been shown to require higher doses of intravenous unfractionated heparin (UFH) than their normal weight counterparts in order to achieve therapeutic aPTT levels. Therefore, it is reasonable to postulate that an increased subcutaneous UFH dose may be necessary for VTE prophylaxis in obese patients. It has been observed that some clinicians use high-dose UFH (7500 units subcutaneously every 8 hours) for VTE prophylaxis in obese patients; however, there are no published studies directly comparing conventional dosing of UFH (5000 units subcutaneously every 8 hours) with high-dose UFH for VTE prophylaxis in obese patients. The purpose of this retrospective, single-center, cohort study is to determine if obese patients would benefit from high-dose subcutaneous UFH therapy versus conventional dosing of UFH for VTE prophylaxis. Methods: Obese patients ≥18 years old presenting between April 2011 and April 2014 who had an order for subcutaneous UFH 5000 units q8h or 7500 units q8h were evaluated. Patients who were pregnant, peripartum, paraplegic, imprisoned, admitted for surgery, admitted with an acute VTE, or with a history of heparin-induced thrombocytopenia or a heparin allergy were excluded. Objective: The primary objective is to compare the rate of nosocomial acquired VTE in obese patients treated with a conventional VTE prophylaxis dose of subcutaneous UFH versus obese patients treated with high-dose subcutaneous heparin. Additionally, a secondary outcome will assess safety, by quantifying bleeding events in both groups. Results: The results of this study will provide much needed information regarding the optimal dosage of subcutaneous UFH for VTE prophylaxis in obese patients.
REVERSIBILITY OF RENAL FUNCTION AFTER DISCONTINUATION OF TENFOVIR.
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Background: Human immunodeficiency virus (HIV) associated chronic kidney disease is a significant cause of morbidity and mortality among seropositive patients. According to the 2014 guideline for the use of antiretroviral agents, Truvada (tenofovir/emtricitabine) is included in six out of the seven preferred antiretroviral treatment regimens. The association of tenofovir with nephrotoxicity has been a controversial issue for many years. Currently, available studies for tenofovir report safety data in controlled environments for a limited duration of time. Studies have yet to be conducted collecting robust data in urban patient populations with other comorbidities. Hypothesis: The hypothesis of this study is that decline in GFR associated with tenofovir use is reversible. Methods: Data will be collected for all patients documented in their medication profiles to have taken tenofovir and either abacavir or zidovudine from November 2004 to November 2014. Patient’s will be included in this study if they are 18 years or older, have been switched from tenofovir to abacavir or zidovudine due to renal function, and have consistently been followed by the HIV clinic. Patients will be excluded if they have failed to follow up at the clinic, are taking other nephrotoxic medications or have end stage renal disease on dialysis prior to use of tenofovir. Baseline characteristics will include patient’s HIV viral load, CD4 count, medication list, comorbidities, and renal function. Renal function will be assessed by serum creatinine and creatinine clearance calculated by the Cockcroft-Gault equation. Patient records will be reviewed throughout tenofovir use and for a one-year period post-tenofovir use to assess changes in renal function, antiretroviral regimen, HIV viral load, and CD4 count. The primary objective of this study is to determine if the decline in GFR associated with tenofovir use is reversible when patients are switched to abacavir or zidovudine. The secondary objectives of this study are to assess the percent of patients requiring dialysis post-tenofovir use, and effect of switching antiretrovirals on viral load and CD4 counts. Results and Conclusion: Will be presented

EXAMINATION OF CLINICAL AND FINANCIAL OUTCOMES OF PATIENTS PRESENTING WITH SEPSIS, WITH AND WITHOUT A PHARMACIST, IN A COMMUNITY TEACHING HOSPITAL EMERGENCY DEPARTMENT
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Background: While the presence of a pharmacist in the emergency department (ED) is not a new concept, the benefits of placing a pharmacist in the ED have been well documented. Despite the supporting evidence, many institutions continue to withhold pharmacists from the ED on account of financial reasons. The study will show how the absence of a pharmacist in the ED setting can result in increased costs and diminished clinical outcomes in addition to showing how the presence of a pharmacist can reverse these trends. Methods: A prospective chart review will be performed for patients who present to the ED with an initial diagnosis of sepsis, severe sepsis, or septic shock. The charts will first be divided into three groups: patients presenting when (1) a pharmacist was present in the ED between January 6, 2014 and March 28, 2014, (2) when no pharmacist was present between July and September 2014, and (3) when a pharmacist was again present between January 5th and March 31st 2015. The purpose of this stratification is to examine the primary and secondary outcomes during the three different time periods. The time in minutes between triage and the first documented dose of intravenous antibiotics in patients identified to have sepsis, severe sepsis, or septic shock will constitute the primary outcome. Secondary outcomes will include the number of pharmacist interventions (i.e., therapeutic and medication recommendations, drug-drug/disease interactions), length of stay, 30-day mortality data as well as cost avoidance analysis detailing how pharmacists can decrease costs through the aforementioned interventions. Statistical analysis will be conducted in accordance with health-system biostatisticians. Results – pending conclusion of study
IMPROVING THE COMPLETENESS OF DRUG ALLERGY DOCUMENTATION THROUGH PHARMACIST INTERVIEW

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Purpose: Incomplete documentation of patient-reported drug allergies may result in avoidance of medications to which a true drug allergy does not exist. The inability of a prescriber to completely assess drug allergies can compromise patient outcomes if suboptimal therapies are utilized as a result of incomplete drug allergy documentation. The purpose of this study is to determine if incomplete drug allergies documented by other healthcare providers will be more complete following a pharmacist-driven patient interview. Methods: This is an IRB approved, single-center, prospective study evaluating the impact of pharmacist interview in resolving incomplete drug allergy documentation. All adult patients admitted to select surgical units were assessed for incomplete drug allergy documentation. An allergy was considered incomplete if the drug, reaction, and/or severity were blank or listed as unknown in the electronic medical record (EMR). A pharmacist interviewed all patients with at least one incompletely documented drug allergy in an attempt to complete the allergy history. The primary endpoint is a comparison of complete drug allergy documentation between standard practice and post-pharmacist intervention. The secondary endpoint is to determine the percentage of documented allergies that would be better classified as side effects or intolerances. Results: Of the 349 patients screened for the study, 55% had at least one documented drug allergy. In the 191 patients with allergy documentation, 74% of allergies documented were complete compared to 93% post-pharmacist intervention. The secondary outcome measures revealed that 47% of the reported drug allergies were true drug allergies, 37% were side effects, and 6% were intolerances. Conclusion: Incomplete drug allergy documentation reconciled by a pharmacist was more complete than the information documented by other health-care professionals in the EMR prior to pharmacist intervention. We hypothesize that the results of this study will be statistically significant.

IMPLEMENTATION OF AMINOGLYCOSIDES DOSING PROTOCOL: A PHARMACY RESIDENT-CENTERED APPROACH

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Background: Aminoglycosides (AG’s) have been widely used and are indicated for a variety of serious infections (e.g., meningitis, endocarditis, bacteremia). Due to the effectiveness of AG’s and high risk of adverse events (e.g., nephrotoxicity, ototoxicity), appropriate dosing and monitoring of serum drug levels are vital. At Lenox Hill Hospital (LHH), pharmacists have observed a trend of errors with AG orders, and therefore education is warranted to ensure optimal therapy for these drugs. The purpose of this study is to compare the appropriateness in dosing of pre-education AG orders with dosing of post-education orders to determine if there was an improvement in the quality of AG orders. Hypothesis: It is predicted that there will be a decrease in the amount of AG errors after education is given. Methods: This is a retrospective review of adult patients who were prescribed routine orders of AG’s between January 1st and March 31st 2014. Each patient’s AG order was assessed for its appropriateness in dosing and monitoring based on the patient’s documented weight, time of trough/peak acquisition, renal function and if traditional dosing or once-daily dosing was used correctly. An educational presentation will be created and provided to pharmacists and ordering prescribers pending the approval of clinical pharmacists and Infectious Diseases Attendings. Data was collected and reviewed via LHH’s computerized physician order entry system and patient medication profiles. Results: Prior to the implementation of education, among 100 AG orders reviewed, dosing and monitoring errors had occurred due to incorrect weight (35%), incorrect renal dose adjustments (12%), and incorrect timing of peak/trough acquisition (10%). Post education results are still pending. Conclusion: Pending
**EFFECT OF VITAMIN K ADMINISTRATION ON INR IN WARFARIN NAÏVE PATIENTS**
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**Background:** The effect of phytonadione on INR reversal in patients receiving warfarin is well defined. However, there is a paucity of literature that analyzes the effects of phytonadione on INR in patients who are warfarin naïve. Despite a lack of literature support, it is not uncommon for patients with an elevated INR to receive phytonadione even in the absence of routine warfarin use. **Purpose:** The objective of this study is to observe the effects of phytonadione administration on the INR of patients who are warfarin naïve.  **Methods:** This study has been approved by the Institutional Review Board. Eligible patients will be identified by electronic medication administration records. All patients who have received phytonadione will be identified and those who also received warfarin will be excluded. Additionally, patients’ electronic medical records will be examined to identify patients who received warfarin as part of their home medication regimen and thus excluded from the study sample. The following data will be collected: Patients’ age upon admission, sex, height, weight, significant past medical history, administration details (date/time, route, dose) of phytonadione, blood products and coagulation factors administered, and laboratory data (INR, albumin, bilirubin, ALT/AST, hemoglobin/hematocrit, WBC, RBC, platelets, and serum chemistry). All identifying patient data will be removed to ensure confidentiality and HIPAA compliance. Researchers will use descriptive statistics (mean, median, mode, standard deviation, etc.) to observe changes in INR before and after the administration of phytonadione while controlling for confounding factors.

**ECONOMIC IMPACT OF BUPIVACAINE LIPOSOME INJECTABLE SUSPENSION IN SURGICAL PATIENTS**
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**Background:** Opioids are the mainstay treatment of post-operative pain control, but are associated with undesirable adverse effects. Bupivacaine liposome injectable suspension (BLIS) is administered as a single intraoperative dose at the surgical site to produce post-surgical analgesia for up to 72 hours. Two randomized, controlled trials studied the safety and efficacy of BLIS use in hemorrhoidectomy and bunionectomy surgical patients and found a significant reduction in opioid consumption at 24 hours.  **Purpose:** The primary objective of this study was to examine the economic impact of BLIS use in various surgical patients.  **Methods:** The Pharmacy Residency Committee approved this retrospective study and the Vice President of Medical Affairs provided IRB approval. Surgical patients, who received BLIS, regardless of the surgical procedure, served as the “treatment” group. Surgical patients who did not receive BLIS with surgical procedures served as the “control” group. The following data was collected for the primary objective via electronic medical record system and financial reports: surgical procedure, BLIS dosage administered, cost of analgesic medications, and length of stay post-operatively. For the secondary objectives, analog pain scales, BLIS administration technique and time to first “rescue” dose of pain medication were collected. All data was recorded without patient identifiers and confidentiality was maintained. Economic impact of BLIS use was determined by comparing the “control” group to the “treatment” group data. Data was evaluated via t-test and showed no statistically significant differences between the data collected from both surgical groups studied. **Results:** There were a total of 160 patient charts reviewed in this study; 40 patients were analyzed in each group. Patients had similar length of stay, days to ambulation, pain scores experienced 72 hours post-operatively and morphine equivalents used. There were more patients in the non-BLIS total knee replacement group that received ketorolac as well as patient-controlled analgesia (PCA) pumps post-operatively than those in the BLIS knee group. The average cost of admission for total knee replacement patients was approximately $5000 less in non-BLIS patients than those that received BLIS. The average cost of admission for inguinal hernia repair was approximately $1000 less in non-BLIS patients than those that received BLIS. **Conclusions:** Although there were limitations in this study, it was concluded that there was no significant economic advantage of BLIS use in either inguinal hernia repair or total knee replacement in regards to length of stay, post-operative pain scores and post-operative analgesia use.
PHARMACIST DRIVEN THERAPEUTIC UTILIZATION OF NEBULIZER BRONCHODILATOR THERAPY: A MULTIDISCIPLINARY APPROACH TO REDUCE INAPPROPRIATE THERAPY IN A COMMUNITY TEACHING HOSPITAL

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**Background:** Bronchodilators such as albuterol and ipratropium are used in patients who have reversible airway constriction. These agents are commonly overprescribed and used in the absence of appropriate indications. Not only does this increase the risk of adverse events, but it also increases the costs incurred by the hospital. When albuterol and ipratropium are ordered as a nebulizer treatment, the expense associated also includes the cost of administration by the respiratory team. **Purpose:** The objective of this study is to determine if the implementation of a pharmacist-driven interdisciplinary effort will reduce the overutilization of nebulizer bronchodilator therapy, reduce adverse events associated with inappropriate use, and reduce costs. **Methods:** This study will be conducted at a community hospital that uses albuterol and ipratropium in nebulizer form. The study will include a retrospective analysis of past nebulizer use, including indication, usage, adverse events and associated costs. In addition, a prospective analysis using an interdisciplinary team approach will be conducted. All patients will be de-identified and given a unique identification known only to the study team. Once the data are collected, a cost analysis focusing on overuse of nebulizer bronchodilator therapy will be completed. In addition, a comparison of adverse events will be performed. **Results:** The results of this study will help determine if a pharmacist driven, interdisciplinary approach to the use of bronchodilators will help reduce costs to a health system.

INCIDENCE OF ACUTE KIDNEY INJURY IN PATIENTS RECEIVING VANCOMYCIN IN THE ABSENCE OF OTHER NEPHROTOXIC AGENTS

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**Objective:** Vancomycin use has been linked to acute kidney injury (AKI) in literature and may deter practitioners from using it in patients with labile renal function. The incidence of AKI in vancomycin use may be confounded by aggressive dosing or concomitant use of other nephrotoxic agents. The objective of this study is to determine the incidence of AKI in patients receiving vancomycin in the absence of other nephrotoxic agents. **Methods:** In a retrospective, single-centered study, medical records of patients treated with vancomycin at Kingsbrook Jewish Medical Center between January 1, 2012 and December 31, 2014 will be evaluated for the incidence of AKI as defined by the Risk, Injury, Failure, Loss, End-Stage Renal Disease (RIFLE) criteria and the Acute Kidney Injury Network (AKIN) criteria. Patients will be included if they are between the age of 18 and 90 years, have received two or more doses of vancomycin, and have a baseline estimated creatinine clearance of at least 30 milliliters per minute (mL/min). Patients will be excluded if estimated creatinine clearance is less than 30 mL/min, are on hemodialysis, are receiving concomitant nephrotoxic agents (detailed list provided in body), are receiving chemotherapy, have active rhabdomyolysis or acidosis, or have received intravenous contrast during or within the previous 3 days of vancomycin therapy. **Results:** No results are available at this time. Reported results will include patient demographics (age, sex, race), admitting diagnosis, vancomycin dose and frequency, mean, minimum, and maximum vancomycin levels, number of total vancomycin doses, concomitant antibiotic usage, and changes in serum creatinine. Results will be presented following data collection and analysis. **Conclusion:** It is anticipated that this study will conclude that the incidence of AKI in patients receiving vancomycin in the absence of other nephrotoxic agents will be lower than the historic reported incidence of vancomycin-associated AKI. **Disclosure:** All clinical research represented was approved by the Institutional Review Board.
PHARMACY DIRECTED COORDINATION OF VANCOMYCIN MONITORING TO DECREASE DURATION OF THERAPY IN A COMMUNITY HOSPITAL
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Background: Vancomycin has consistently proven its usefulness as empiric therapy in several different infection types and as a drug of choice for resistant gram-positive infections, including methicillin-resistant staphylococcus aureus (MRSA) in which resistance to penicillin antibiotics has developed. Appropriate management of therapy can prevent negative sequelae such as omitting or adjusting doses based on inaccurate trough levels, overuse of broad-spectrum antibiotics, and extending length of stay. Therefore, strong interdisciplinary collaboration is essential to ensuring the proper use of vancomycin to improve outcomes. Purpose: This study will assess the impact of improving interdisciplinary care on the appropriate use of vancomycin through pharmacy resident-directed monitoring of vancomycin therapy. Methods: This study, with the approval of the Institutional Review Board, will involve a retrospective analysis to assess the clinical impact of pharmacy directed monitoring and communication with nursing staff regarding vancomycin therapy. There are two components of the intervention. First of which, is the communication of patients receiving vancomycin therapy with the nursing staff. This communication will involve a daily e-mail sent to nursing management which will include all patients currently receiving vancomycin therapy, time of initial dose, plan of continuing care, and schedule of next trough level. The second component of the intervention will be comprised of pharmacists’ assessment of trough levels and communication with physicians regarding current regimen, goals of therapy, and dose adjustments when necessary. The primary outcome of this study includes the duration of vancomycin therapy and the proportion of patients successfully treated with vancomycin. This retrospective analysis will measure the duration of vancomycin therapy for patients admitted and treated from November 11, 2014 to January 9, 2015 and January 19, 2015 to March 19, 2015. Secondary outcome measures will include the number of appropriately drawn vancomycin troughs.

EVALUATION OF THE EFFECTIVENESS OF AUTOMATED ELECTRONIC HEPARIN NOMOGRAMS USED AT A QUATERNARY CARE TEACHING HOSPITAL
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Background: Heparin, a commonly used parenteral anticoagulant for thrombotic disorders, has variable pharmacokinetics that necessitates frequent laboratory monitoring of the anticoagulant response with activated partial thromboplastin time (aPTT). Weight based heparin nomograms are used to standardize heparin doses based on the aPTT values and to achieve rapid therapeutic anticoagulation. Purpose: The purpose of this study is to evaluate the effectiveness of each automated electronic nomogram used at our institution at achieving and maintaining therapeutic aPTTs. Methods: The institutional review board approved this retrospective chart review for exempt status because this research involved the collection of existing data. The chart review was performed for 100 adult patients aged 18 and older who received continuous intravenous heparin infusion based on automated electronic heparin nomograms in 2014. We included patients who received heparin for at least 24 hours. We excluded patients with heparin allergy or a history of heparin induced thrombocytopenia, pregnant patients, and patients receiving subcutaneous heparin injections for venous thromboprophylaxis. The following data were collected: gender, age, weight, time to first therapeutic aPTT, time spent within therapeutic aPTT range, incidence of subtherapeutic and supratherapeutic aPTT, and clinical outcomes such as bleeding and thromboembolic events. All data were recorded without patient identifiers and maintained confidentially. Results and final conclusion are pending at the timing of abstract submission.
A PROSPECTIVE IMPACT ON VANCOMYCIN WEIGHT-BASED DOSING AND MONITORING

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**Background:** Based on antimicrobial stewardship intervention data analysis, vancomycin is the most common antimicrobial agent that is dosed and monitored incorrectly at Lenox Hill Hospital. The Infectious Disease Society of America (IDSA) recommends a weight-based vancomycin dosing of 15-20 mg/kg/dose based on actual body weight (ABW). However, the most common dosing typically utilized is the conventional dosing of vancomycin 1 gram q12h. In order to reach target trough levels, improve therapeutic effectiveness, and practice proper antimicrobial stewardship, appropriate dosing and monitoring is crucial when prescribing vancomycin. **Hypothesis:** It is predicted that there will be an improvement in the initial dosing of vancomycin with a weight-based dosing order set built into a computerized prescriber-order-entry (CPOE) system. **Methods:** A retrospective chart review of 100 randomly selected patients was conducted from June and July of 2014. Patients who were less than 18 years old, on hemodialysis or who were receiving therapy for less than 5 days were excluded. Data collected and analyzed included the most common dosing seen, the most common indication seen, whether a true trough was measured, and whether the trough was suboptimal (< 10 mg/L). Post analysis, pharmacist and physician education regarding general information, proper dosing, and monitoring of vancomycin was implemented. In addition, a proposed weight-based dosing order set was created to potentially be built into a CPOE system to prospectively affect initial dosing of vancomycin in hopes of improving prescribing. **Results:** Physicians commonly dosed vancomycin 1 gram q12h in 85 of 100 patients (85%) regardless of the patient’s weight. The most common indication seen in these patients was to treat clinically proven or suspected MRSA (72%). True trough levels were only taken in 48 out of 100 patients (48%) and out of those 48 patients, 17 patients (35%) had suboptimal serum vancomycin levels (< 10 mg/L). **Conclusions:** To be determined.

EVALUATION OF APPROPRIATE USAGE OF ORAL PANTOPRAZOLE IN A LARGE MEDICAL CENTER

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**Background:** Proton pumps inhibitors (PPI’s) are being used more and more frequently in both the inpatient and outpatient settings. Many times, the indication for use is unclear and there is a question of whether the drug is necessary. In recent years, there has been suspicion for several adverse events due to long term use of PPI’s, including: increased risk for bone fractures; clostridium difficile infection; and pneumonia. There are additional concerns associated with PPI use, including significant drug-drug interactions and decreased efficacy of drugs that require an acidic environment for absorption. In order to minimize these unnecessary risks, a medication use evaluation will be conducted at Montefiore Medical Center to determine if these agents are being appropriately prescribed. Pantoprazole is the medication on formulary, thus the most commonly prescribed PPI at our institution. The primary endpoint will determine if pantoprazole was prescribed according to the Food and Drug Administration (FDA) approved indications. The secondary endpoint will analyze if pantoprazole was continued upon discharge. **Methods:** This study will be submitted to the quality improvement committee. The information gathered will include all patients prescribed oral enteric coated pantoprazole sodium of any strength from January 1st to January 29th 2015 on all general medicine units at Montefiore Medical Center (Weiler, Moses, North). There will be no patient identifiers collected, except for demographics (i.e. age, gender, and campus where hospitalized). Fifty adult patients will be randomly selected in this retrospective study comparing the FDA approved indications for pantoprazole use, to the indication for therapy initiation. The following indications will be used for comparison: healing and maintenance of erosive esophagitis; treatment of gastroesophageal reflux disease (GERD); prophylaxis for gastric ulcers associated with nonsteroidal anti-inflammatory drugs (NSAIDs); helicobacter pylori (h.pylori) eradication to reduce the risk of duodenal ulcer (DU) recurrence, in combination with antibiotics; pathological hypersecretory conditions, including zollinger-ellison (ZE) syndrome; treatment and maintenance of duodenal ulcers; and prophylaxis of barrett's esophagus. The notes section and the problem list in the electronic medical record will be reviewed in order to identify the indication for pantoprazole use. Data will be obtained from the institution's electronic medical record. Descriptive statistics will be used to analyze the data.
EVALUATION OF A NOVEL TREATMENT ALGORITHM FOR PATIENTS WITH HCAP
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Purpose: The current health-care associated pneumonia (HCAP) model of identifying patients with multi-drug resistant (MDR) pneumonia is under debate. Literature published after the 2005 ATS/IDSA guidelines indicate that the risk factors for identifying patients at risk for MDR pneumonia are too broad and may capture too many patients, leading to inappropiate use of broad spectrum antibiotics. Thus the current risk factors for HCAP may not be identical to risk factors for MDR pneumonia. The aim of this study is to evaluate a treatment algorithm for empiric antibiotic therapy in HCAP patients initially introduced by Brito, et al. in a 2009 meta-analysis and later validated by Maruyama, et al. in 2013 with a prospective cohort study. The treatment algorithm subdivides HCAP patients into 4 distinct groups based on severity of illness and the latest risk factors for MDR pneumonia. Depending on which group the patient falls in, they will either receive CAP based regimens or HCAP based regimens. The overall objective is to further refine which patient populations are truly at risk for MDR pneumonia to further our efforts to attain appropriate empiric antibiotic therapy as well as curbing the promotion of bacterial resistance.

Methods: This study will be a single center prospective, randomized cohort study comparing a cohort which follows the treatment algorithm outlined by Brito, et al. to a cohort of the standard of care currently under the 2005 ATS/IDSA guidelines. Patients diagnosed with HCAP as per guideline recommendations will be randomized into one of the study groups within 24 hours. HCAP patients randomized into the study cohort will be subdivided into 4 groups based on severity of illness as assessed by the pneumonia severity index (PSI).and the total number of the following MDR risk factors: 1. Immunosuppression - neutrophils<1.0 x 109/L, congenital immunodeficiency, splenectomy, human immunodeficiency virus [HIV] infection, hematologic malignancy, immunosuppressant or systemic steroid therapy [>10 mg prednisolone-equivalent per day for 2 or more weeks]; 2. Poor functional status – as defined by a score of ≤ 50% on the Barthel index; 3. Hospitalization within the last 90 days; 4. Antibiotic therapy within the last 90 days. Results: 7 day mortality, empiric therapy, presence of MDR pneumonia, length of stay, incidence of acute kidney injury. Conclusion: It is expected that this study will demonstrate no difference between the two cohorts and still allow clinicians to treat a substantial proportion of HCAP patients with CAP regimens.

ROLE OF ANTIFUNGAL THERAPY IN THE TREATMENT OF PERSISTENT DIARRHEA IN HOSPITALIZED PATIENTS
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Objective: Diarrhea, defined as three or more loose bowel movements per day, is a significant health problem in hospitalized patients. Clostridium difficile infection is often a suspected cause, especially in those recently treated with antibiotic therapy. However, C. difficile infection only accounts for 10-20% of cases of antibiotic-associated diarrhea (AAD) and other infectious causes, such as, Candida species, can be implicated in many cases. A previous study at our institution identified Candida species overgrowth in 20-30% of patients with AAD. When these patients were treated with oral nystatin, they had a significantly higher and faster rate of diarrhea resolution than those not treated with nystatin. Nystatin therefore has a potentially important role in the management of diarrhea in hospitalized patients. Purpose: The purpose of this study is to further evaluate whether treatment with oral nystatin improves outcomes in hospitalized patients with persistent diarrhea.

Methods: This is a prospective, single-center randomized-controlled trial of hospitalized patients with persistent diarrhea. Patients age 18 years and older with diarrhea that persists after at least 72 hours of empiric C. difficile treatment with oral or intravenous metronidazole or oral vancomycin will be included in the study. Eligible patients will be randomized into the conventional therapy group or nystatin group. Patients in the conventional therapy group will receive conventional empiric C. difficile therapy and patients in the nystatin group will receive oral nystatin 1,000,000 units every six hours in addition to conventional empiric C. difficile treatment. Patients in both groups will also receive supportive care, such as fluid and electrolyte replacement, as deemed necessary. Patients will be excluded if they have a hypersensitivity to nystatin or are receiving antifungal therapy. The primary objective of the study is to compare the rate of diarrhea resolution among patients treated in the conventional therapy and nystatin groups. The secondary objectives of the study are to determine the length of stay and time to diarrhea resolution among patients receiving conventional therapy alone versus conventional therapy with nystatin therapy. Institutional review board (IRB) approval was obtained and informed consent was not required. Results: The rate of diarrhea resolution, hospital length of stay, and time to diarrhea resolution will be reported for the conventional and nystatin therapy groups. Conclusion: It is anticipated that this study will determine the role of nystatin therapy in hospitalized patients with persistent diarrhea that does not respond to empiric C. difficile treatment.
METHYLNALTREXONE USE IN A LARGE URBAN HEALTHCARE SYSTEM
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Background: Methylnaltrexone (MNTX), an injectable peripherally acting opioid receptor antagonist, is indicated for the treatment of opioid induced constipation in patients who failed to respond to conventional laxative treatment. Literature suggests that a reasonable approach to treating opioid induced constipation includes conventional laxatives, including stimulants, softeners, bulk forming agents, and enemas, followed by opioid antagonists in refractory cases. Although MNTX was added to our formulary in August 2013, there is no specific protocol for appropriate use of MNTX. Hypothesis: We hypothesized that MNTX may be used inappropriately, such in patients not on opioid analgesics or without attempting conventional laxatives first. Inappropriate use may affect patient safety and overall treatment costs. Methods: All orders placed for MNTX from August 2012 to August 2014 were identified using the hospital’s EMR system. Data on patient demographics, doses administered, duration of opioid treatment, traditional laxatives attempted, indication for use, and renal function were collected and analyzed. Each order was evaluated according to pre-defined appropriateness criteria, which included 1) history of opioid use, 2) conventional laxatives attempted, and 3) cancer-related pain. Dosing was evaluated based on indication, weight, and adjustment for renal dysfunction. Additionally, analyses were performed on the use before and after formulary addition, use by oncology versus non-oncology teams, and use in pediatric patients. Results: 72 orders for MNTX were placed between August 2012 to August 2014, with 52 total doses administered in that time period. 56% of all orders were placed for pediatric patients. 82% of orders were placed at an appropriate dose, while only 54% met the criteria for use. Lactulose, docusate, senna, and PEG3350 were the most commonly attempted conventional laxatives prior to MNTX order. Conclusion: MNTX is used inappropriately both before and after the formulary addition. Most common reasons for inappropriate use include non-cancer pain and use in pediatric population. With the FDA approval of MNTX use in non-cancer related pain, the main challenge in the institution remains developing a policy for MNTX used in population <18 years old.

UTILIZING AN INTERDISCIPLINARY TEAM APPROACH TO IMPROVE PATIENT CARE AND REDUCE HOSPITAL READMISSIONS FOR BEHAVIORAL HEALTH PATIENTS AT AN URBAN TEACHING HOSPITAL
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Purpose: Building Bridges to Home and Community Care (BIP program) is an innovative new interdisciplinary program instituted at Niagara Falls Memorial Medical Center (NFMMC). The main goal of this program is to develop unified care transition plans, provide direct education and support to patients, and connect their caregivers to medical, mental health and medication management assistance. The objective of this study is to assess the impact of this interdisciplinary forum where pharmacists and other health professionals, who share a common commitment to providing superior patient care, work collaboratively to improve patient outcomes and reduce readmissions through enhanced communication, collaborative medication and disease state management, improved discharge planning, post-discharge follow-up, and increased patient and caregiver education. Methods: This prospective, non-randomized, interventional study was carried out at NFMMC from November 2014 – March 2015. Patients whose primary insurance was Medicaid or a managed Medicaid program were eligible for inclusion. Biweekly interdisciplinary meetings were held with pharmacists, nurses, social workers, NFMMC Health Home case managers, rehabilitation service providers, and either the project director of the BIP program or the coordinator of social services. The team discussed patient issues including medication therapy management and needed education for patients and their caregivers. Interventions and patient/caregiver counseling and education data was collected, along with readmission rates during the study period. This data was compared to the readmission rates for the four months prior to the intervention period to help determine the value of this interdisciplinary team and the recommendations made as part of it.
IMPACT OF A PHARMACIST-DRIVEN PNEUMONIA BUNDLE IN THE EMERGENCY DEPARTMENT OF A COMMUNITY TEACHING HOSPITAL
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Purpose: Antimicrobial guidelines aim to optimize patient care while minimizing antibiotic resistance. Targeted care bundles are methods of carrying out these objectives in standardized clinical practice. This study was conducted to determine the impact of a pharmacist-driven pneumonia bundle in patients presenting to the emergency department (ED) with community acquired pneumonia (CAP) or healthcare associated pneumonia (HCAP). Methods: Adult patients (>18 years) presenting to the ED with CAP or HCAP were included in a single-center prospective study. This study was designated IRB exempt and represents a non-randomized sampling of patients. Pneumonia was defined according to the Infectious Diseases Society of America/American Thoracic Society consensus guidelines. Patient demographics included age, gender, and antibiotic administration within the previous 30 days. The ED pneumonia bundle included placement on a pneumonia pathway protocol, appropriate empiric antibiotic selection and administration within 6 hours of admission to the ED, sputum collection within 8 hours of first dose antibiotic, and administration of influenza and pneumococcal immunizations in eligible patients. A pharmacist was notified at the time of patient presentation to the ED and made interventions to ensure adherence to the bundle. Patients who received standard care when the designated pharmacist was unavailable served as the comparator group. The primary outcome was percent adherence to the bundle components. Secondary endpoints were antibiotic de-escalation at 72 hours based on sputum culture result, length of stay, and hospital re-admission. Comparisons between study subjects were carried out using un-paired T-tests or Chi-squared analysis as appropriate. Results: Pending. Conclusion: Pending.

EVALUATION OF EARLY VERSUS LATE POST-DISCHARGE MEDICATION RECONCILIATION ON READMISSION RATES AND EMERGENCY DEPARTMENT VISITS
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Background: The transition from the hospital to an outpatient setting remains a vulnerable time for patients. Safe care transitions are essential in order to provide high-quality patient care, minimize medication errors and reduce avoidable readmissions. Prompt follow-up with an outpatient provider for post-discharge medication reconciliation is a key element in effective programs focusing on transitions from hospital to home. Current literature states ideal post-discharge follow-up can range anywhere between 48 hours and two weeks of hospital discharge. Although there has been much research in transitions of care, there is a lack of evidence regarding optimal timing of a follow-up visit to prevent readmissions. The purpose of this study is to evaluate the impact of early versus late post-discharge medication reconciliation on readmission rates and emergency department use. Hypothesis: It is expected that there will be no difference in outcomes whether a patient has early (≤ 48 hours) or late (between 48 hours and two weeks) post-discharge medication reconciliation. Methods: In this retrospective data analysis study, electronic data for all patients who had a clinic visit with a pharmacist or primary care physician in either Family Medicine or Internal Medicine at The Brooklyn Hospital Center from August 2013 to August 2014 for post-discharge medication reconciliation will be reviewed. The following data will be collected: baseline demographics (including length of stay, acuity of admission, Charlson Comorbidity Index, emergency department visits within the past 6 months), number of days from discharge to post-discharge clinic visit, and time to readmission or emergency department visit within 90 days post-discharge clinic visit. The primary efficacy endpoint is the readmission rate at 30 days (including hospital admission or emergency department visits). The secondary endpoint is the readmission rate at 90 days (including hospital admission or emergency department visits). The study will utilize purposeful non-random sampling. Descriptive statistics will be used to assess baseline demographics and bivariate and multivariate statistics will be used to determine association with primary and secondary outcomes. Results: Results will be presented pending further data analysis. Conclusions: With this study, there will be additional data evaluating the impact of timing of post-discharge medication reconciliation and the effect on readmission rates and emergency department use.
UTILIZATION OF 12-HR URINE COLLECTION TO OPTIMIZE DOSING
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Background: Assessment of organ function is one of the many evaluations that are necessary in the critically ill population. Since various drugs require renal elimination, the functional status of the kidney has been of great interest to clinicians. Historically, efforts to identify decreased renal function have been the center of attention due to the potential for drug toxicity. However, recent studies have noted that the converse is also significant but this is seldom considered in clinical practice. This phenomenon has been observed in critically ill patients and although the exact mechanism is unclear, it is believed to be due to the physiological changes that occur during critical illness. Various studies have identified ARC as CrCl greater than 130 mL/min. One of the main consequences of that antibiotics use during augmented renal elimination has the potential for treatment failure, increased resistance, and increased mortality due to low serum concentrations and as a result underexposure at the site of infection. Methods: At our hospital patients with ARC will be identified based on CrCl-12 hr greater than 130 mL/min. This retrospective chart review will be submitted for IRB approval. Medical records of patients admitted to the adult ICU service suspected of having ARC will be evaluated. The following data will be collected without patient identifiers: baseline demographics, length of ICU stay, hospital length of stay, adverse effect from antibiotics, and duration of ARC. The primary endpoint of this study is prevalence of ARC in ICU. Secondary outcome measure include length of ICU stay, hospital stay, adverse effect, duration of ARC and number of patients required higher antibiotic doses based on ARC. The results of this study will help us validate characteristics of patients presenting with ARC and allow us to provide optimal drug dosing.

IMPACT OF IMPLEMENTATION OF A PHARMACIST DRIVEN ANTICOAGULATION MONITORING SERVICE IN A SMALL URBAN TEACHING HOSPITAL
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Purpose: Traditionally, vitamin K antagonists have been the mainstay of oral anticoagulation therapy, but require significant patient monitoring. The novel oral anti-coagulants (NOACs) have brought a new approach to treating patients needing anticoagulation without the need for routine blood testing and monitoring. The objective of this study is to determine if pharmacists monitoring oral anticoagulation as part of a new pharmacy service will improve patient outcomes. This would not only monitor for therapeutic efficacy with vitamin K antagonists, but also appropriateness of use of the newer agents.

Methods: This study was conducted as a quality improvement project (institutional review board not required), evaluating whether or not a newly established pharmacy monitoring anticoagulation service would improve patient outcomes. The electronic medical record system was utilized to identify patients who have been on any oral anticoagulation medications, including warfarin (Coumadin®), dabigatran (Pradaxa®), rivaroxaban (Xarelto®), and apixaban (Eliquis®), while in the medical units of a community hospital. The following data were collected: baseline patient characteristics including age, sex, height, weight, comprehensive metabolic panel, and complete blood count. Data collected also included: drug monitored, indication for therapy, dose, appropriateness of dose, if therapy was held and why, and potential drug interactions. All data were recorded without patient identifiers and maintained confidentially. Dosing regimens were assessed for correctness for the NOACs, as well as percent of time in a therapeutic international normalized ratio (INR) range for warfarin for each appropriate indication. A sample of four months of data was collected prior to implementation of the monitoring service, and then again four months after the service has been implemented to assess the pharmacist impact on patient care. Results: Preliminary data revealed a common trend in the oral anticoagulation therapy without pharmacists actively monitoring. Doses were being inappropriately omitted for warfarin and the NOACs. There were 24 doses of warfarin (29%) and 6 doses of NOACs (35%) inappropriately omitted, excluding holding parameters including surgery, any bleed, supratherapeutic INR, or patient refusal. Time in therapeutic INR for warfarin was 31%. Initial findings displayed that 35% of the NOACs were inappropriately used due to either wrong dose, frequency, or length of treatment per the approved indications. These preliminary results will be compared to those after the implementation of a pharmacy-driven monitoring service. Conclusions: The results of this study will show the utility of pharmacists involved in the monitoring of anticoagulation therapy in the inpatient setting.
USE OF ANTIDEPRESSANT MEDICATIONS AND THE DIFFERENCES IN THE SEVERITY OF CLOSTRIDIUM DIFFICILE INFECTION: A RETROSPECTIVE, COHORT STUDY.
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**Purpose:** Clostridium difficile infection (CDI) is one of the most common hospital acquired infections, and a significant cause of mortality especially in elderly patients. Dalton et al conducted a retrospective cohort study of 14,719 hospitalized patients to assess the association between proton pump inhibitor use and CDI. This study also identified a positive correlation between antidepressant use and risk for CDI. However, no further studies have evaluated the link between antidepressants and the level of CDI severity. The objective of this study is to evaluate the association between antidepressant use and the level of severity of CDI and to characterize the differences in presentation of antidepressant associated CDI through assessing the differences in length of stay, percentage of time in the ICU, time to resolution of symptoms, recurrence rate, medications used in the treatment of CDI, and rate of mortality. **Methods:** The institution’s electronic medical record system will be utilized to identify patients who tested positive for CDI over a two year period. Patients younger than 18 years of age will be excluded from this study. Patients who use antidepressants and have a CDI diagnosis determined by a positive enzyme immunoassay will be included in the study. An ATLAS score, which is a scoring system that predicts mortality due to CDI, will be calculated for each patient. This consists of five components: age, temperature, leukocytes, albumin, and systemic antibiotics, with each variable assigned a score. A higher score correlates with a higher risk of mortality. The following patient characteristics will be collected and analyzed: age, gender, ethnicity, length of stay, antibiotic days, comorbidities, and medications at the time of CDI diagnosis. Descriptive and inferential analyses will be performed to assess for differences in patient characteristics and to evaluate the association between antidepressant use and CDI. Alpha will be set a priori to 0.05. No patient consent will be required due to the retrospective nature of this study, and all data will be documented without patient identifiers. This study has been approved by the Institutional Review Board.

PHARMACY-LED ADVERSE DRUG EVENT REPORTING: 10 YEAR HOSPITAL SURVEY OF A COMMUNITY HOSPITAL AND NURSING HOME
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**Purpose:** Adverse drug events (ADEs) represent a substantial burden in healthcare. In the United States ADEs are between the fourth and sixth leading causes of death and lead to 1.56-4 billion dollars in direct hospital costs per year. Numerous studies have shown that specific computerized interventions may reduce medication errors, but few have examined ADEs compiled in a ten year period in a hospital that utilizes a computerized medication ordering and administration system, including computerized physician order entry. The objective of this study is to provide a review of 10-year findings from a community hospital’s ADE database. **Methods:** This is a retrospective, single-centered review of Kingsbrook Jewish Medical Center’s ADE database to be conducted on the data entered starting from January 1, 2004 to December 31, 2014. This evaluation will look at various trends based on drug classes, location, preventability, and severity of ADE reports in the acute care setting. Severity is defined using severe, moderate or mild. Severe is defined as an adverse reaction causing patient harm, prolonged hospitalization, transfer to a higher level of care, or death, moderate is defined as an ADE requiring an intervention to prevent progression of the reaction, and mild is defined as a transient reaction which may not require intervention. Data will be accessed using a Microsoft access program with restricted access to onsite data entry. Reports will be generated utilizing de-identified information. Data will be sorted by tables using Microsoft excel spreadsheets. Descriptive statistics will be utilized to characterize the data and provide insight on trends observed. **Results:** No results are available at this time. Reported results will include important findings on most common drug classes reported, preventability of reported ADEs, severity of reported ADEs, and location. We also anticipate being able to correlate the latter findings with implemented pharmacotherapy protocol and procedure, therapeutic drug monitoring, and high alert drug notifications. Results will be presented following data collection and analysis. **Conclusion:** Not yet available.
Background: Over 25 million Americans experience some form of acute pain due to injury or surgery and many are not treated appropriately despite new advances in medicine. Inadequate pain control can result in decreased quality of life, longer recover time, and higher health care costs. Hospital consumer assessment of healthcare providers and systems (HCAHPS) and Press Ganey surveys are often used to measure patient satisfaction which also encompasses pain management. Low scores on the pain section of these surveys have been highly associated with overall low scores on these surveys as a whole. A comprehensive systemic review and meta-analysis evaluated 583 unique articles including 5 randomized controlled trials in chronic pain management with pharmacist involvement. Data shows that pharmacist led medication review in chronic pain management resulted in reduced pain intensity, improved physical functioning and patient satisfaction.  Hypothesis: Pharmacists intervention in the orthopedic surgery unit on patients who had severe pain will improve both pain scores during the admission as well as Press Ganey scores.  Methods: This study will be submitted for Institutional Review Board approval. This study will include approximately 100 patients on opioid therapy, aged 18 and over with significant pain scores. Pain scores are assessed on a scale of 1 to 10, with 10 being the most severe pain. Significant severe pain scores are defined as pain scores above 7. Patients with two consecutive significant pain scores are identified by the electronic medical record system. Patient will be assessed before and after the interventions. Pharmacists are assigned to the hospital’s orthopedic surgery unit to assess patient’s pain management. Data to be collected include age, gender, pain scores, all relevant medication information, pharmacist interventions, and Press Ganey survey scores. All data will be recorded without patient identifiers and maintained confidentially. Pharmacists will make recommendations based on patients’ drug regimens to improve pain control. The primary outcome measure will be the difference of pain scores 6 hours before and 12 hours after intervention, while the secondary outcome will be measured by difference in Press Ganey scores.  Results: Pending

EVALUATION OF METERED-DOSE INHALER TECHNIQUE AND MEDICATION KNOWLEDGE IN PEDIATRIC PATIENTS AND THEIR CAREGIVERS PRESENTING TO THE EMERGENCY DEPARTMENT FOR AN ASTHMA EXACERBATION
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Background: Asthma is one of the most common disease states among American children. The state of New York exceeds the national prevalence rate reporting 9.1% of the population currently living with asthma. Incorrect inhalation technique can impair drug disposition into the lungs leading to poor asthma control and morbidity. Previous studies have reported that a high rate of pediatric patients and their caregivers have poor inhaler technique when assessed in an ambulatory care setting. There is a lack of studies conducted in the emergency department, which may allow access to a larger, more diverse patient population. This study will assess metered-dose inhaler technique and medication knowledge in pediatric patients and their caregivers presenting to the emergency department for an asthma exacerbation. The objective of this study is to evaluate the correlations among metered-dose inhaler technique, medication knowledge, disease severity, and the frequency of emergency department visits and asthma-related hospital admissions. The primary outcome will be the correlation between metered-dose inhaler technique and frequency of emergency department visits.  Primary endpoints include the metered-dose inhaler checklist score, Vitalograph® AIM result, and number of emergency department visits for an asthma exacerbation in the past 12 months. Secondary outcomes include the correlation between metered-dose inhaler technique and hospital admissions, medication knowledge and emergency department visits, medication knowledge and asthma-related hospital admissions as well as the correlation between both metered-dose inhaler technique and medication knowledge with asthma severity.  Hypothesis: Metered-dose inhaler technique and medication knowledge will correlate with disease severity and both frequency of emergency department visits and asthma-related hospital admissions.  Methods: We will evaluate pediatric patients and their caregivers’ metered-dose inhaler technique and medication knowledge. A convenience sample will be collected from January through June 2015 with a goal sample size of up to one hundred patients. Participants will be asked to complete the study survey and have their inhaler technique observed using a checklist assessment. Following the checklist assessment of inhaler technique, participants will then be asked to demonstrate how they use their inhaler using the Vitalograph® AIM device. The investigator will record the results on the inhaler technique assessment form.  Results: Data for all patients will be collected and results will be presented.  Conclusions: With the results of this study, we hope to focus on this at risk patient population for further education reinforcement and to ensure proper follow-up.
EFFECT OF PHARMACIST LED DISCHARGE COUNSELING PRIOR TO AND POST DISCHARGE ON THIRTY DAY READMISSION RATES IN HEART FAILURE PATIENTS
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Background: The rate of unplanned heart failure readmissions in the United States stands at 23%, with a 30-day heart failure mortality rate of 11.7%. There have been various multidisciplinary initiatives implemented nationwide to improve heart failure outcomes. Pharmacists are being utilized as a critical component of these initiatives. Despite the recent increase in published articles focusing on best practices for heart failure readmission reduction, the evidence providing head-to-head comparisons of specific pharmacy interventions has been limited. Purpose: The purpose of this study is to assess the impact of pharmacist counseling pre- and post-discharge on 30-day heart failure readmission rates. Methods: The study design is a randomized, prospective pilot study. Patients 18 years and older admitted with a heart failure diagnosis, with an EF less than 40 within the past year, are being recruited. Patients will be randomized to one of three treatment arms; standard of care (control group), pre-discharge pharmacist counseling, and post-discharge pharmacist counseling. In addition to receiving standard of care, those in the intervention groups will receive education by a pharmacist that includes; education on the patients’ disease states and medications, as well as the importance of adherence. The primary objective of this study is to assess whether 30-day heart failure readmission rates improve after a counseling session with a pharmacist, prior to, or 48 to 72 hours post-discharge. Secondary objectives include; 30-day readmission rates in high versus low-risk patients, number of echocardiograms within the past year, and estimated cost savings associated with pharmacy interventions. Information to be collected includes; patient demographics, patient-specific monitoring parameters, number and appropriateness of medications on admission and discharge. Data will be confidentially recorded without patient identifiers. This study obtained Institutional Review Board approval, and informed consent for all subjects is being obtained. Results are pending.

MEDICATION USE EVALUATION OF EPOETIN ALFA IN AN ACUTE INPATIENT SETTING
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Background: Epoetin alfa is currently FDA-approved for the treatment of anemia associated with chronic kidney disease, chemotherapy in cancer patients, zidovudine use in HIV-infected patients, and those scheduled to undergo surgery to reduce the need for allogeneic blood transfusions. Currently, this agent is used off-label for patients who cannot receive or tolerate blood products (e.g. Jehovah’s Witness). Although this practice may be beneficial, it is also associated with higher rates of adverse drug reactions and medical costs. The primary objective of this study is to evaluate adherence to hospital protocol when prescribing epoetin alfa in this population. The secondary objective will involve evaluating therapeutic response during inpatient admission.

Methods: This study is a retrospective cohort chart review evaluating inpatients that received at least one dose of epoetin alfa with documented inability to tolerate or receive blood products. Identification of patients will be accomplished through our institution’s computer information system and approved by the Quality Management Committee. For included patients, documentation of hematology consultation and limitation to four doses during hospitalization will be assessed for appropriateness according to hospital protocol. In addition, the trend of hemoglobin from baseline and throughout patients’ length of stay will be evaluated. All information will be recorded without identifiers to maintain confidentiality. Results from this evaluation will help determine the extent to which our prescribers are adhering to current hospital protocol and if adjustments are needed to current practices. Additionally, our findings will allow us to determine the effectiveness of epoetin alfa in an acute, inpatient setting as well as its’ financial implications in our institution’s medication utilization.
IMPLEMENTATION OF AN INTRAVENOUS IMMUNOGLOBULIN STEWARDSHIP PROGRAM
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**Purpose:** Intravenous Immunoglobulin (IVIG) is generally dosed by weight though there are no clear guidelines or consensus whether to use actual body weight (ABW), ideal body weight (IBW) or adjusted body weight (AdjBW) when calculating the dose to be dispensed. A survey querying hospitals about which type of dosing strategy they used for IVIG was posted to the American College of Clinical Pharmacy Adult Medicine Practice and Research Network forum have shown that institutions have implemented the use of IBW and/or AdjBW instead ABW. This project will assess and evaluate the impact on the overall usage of IVIG and financial savings due to a pharmacist-driven stewardship to recommend the use of IBW or AdjBW to calculate the dispensing dose of IVIG. **Methods:** This is a three-month IRB approved single centered, prospective study. Each time a prescriber orders IVIG, a pharmacist will contact the prescriber to make a recommendation on which weight should be used to calculate the dose of IVIG. Based upon the pharmacokinetic principles of IVIG, pharmacist will recommend either IBW or AdjBW for patients with a body mass index of greater than 30kg/m². In the event that the pharmacist is unable to immediately speak with the prescriber, the pharmacist will use the hospitals current practice of using ABW to calculate the initial IVIG dose. The pharmacist will again attempt to contact the prescriber the next day to inquire about the IVIG, if the duration of therapy was greater than a day. Once the prescriber decides which weight to use, we will calculate and dispense the IVIG dose to the nearest 10 gram vial. For each IVIG order, we will record whether or not the physician accepted the pharmacist recommendation. We will also record the IVIG dose, frequency, duration of the therapy, and indication. For each patient, we will record their ABW, IBW, AdjBW and total grams dispensed. **Results:** The recommendation acceptance rate, the grams of IVIG saved, and the monetary savings will be presented. **Conclusion:** It is hypothesized that a pharmacist-driven stewardship of IVIG will reduce the amount of IVIG dispensed and reduce the cost associated with IVIG.

INSTITUTIONAL IMPACT OF A PHOSPHATE SUPPLEMENTATION TREATMENT GUIDELINE DURING A NATIONAL SHORTAGE OF INTRAVENOUS SODIUM PHOSPHATE
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**Purpose:** This study aims to assess if patient outcomes were impacted by the adoption of a serum phosphate-based treatment guideline, which was designed to conserve use of intravenous (IV) sodium phosphate products during the national drug shortage. The primary objectives are to determine if there was a difference in phosphate correction in patients treated under the conservation measures versus patients treated prior to the shortage and if there was a difference in hospital length of stay (LOS). **Methods:** This is an IRB-approved, single-center, retrospective, case-control study of 1,419 adult hospitalized patients who had a serum phosphate level of 2.5 mg/dL or less. A random sample of cases (n=64) during December 2013 to March 2014 (time of phosphate conservation measures) was compared with a sample of matched controls (n=64) during the same months in 2011–2012 (pre-phosphate shortage). Case-control pairs were matched based on sex, age, severity of serum phosphate level, level of care, and requirement for intubation. Data was collected from laboratory reports and documentation within the electronic medical record. Summary statistics for clinical and demographic variables will be computed for both cases and controls. **Results:** Differences in phosphate dose/route/frequency, ability to correct serum phosphate (within 48 hours post-dose), hospital LOS, ICU LOS (if applicable), ventilator days (if applicable), and in-hospital and 30-day post discharge mortality will be presented. Some patients with phosphate levels that warranted treatment may have been treated with no supplementation, and perhaps without adverse outcomes. **Conclusions:** We hypothesize there was no statistical or clinical difference in outcomes between patients with hypophosphatemia within the timeframe of the shortage treated under conservation measures versus similar patients treated prior to the IV phosphate shortage. If patient outcomes were unaffected when conservation measures were in place, the treatment guideline using oral formulations should be made standard at our institution.
Prospective Exploratory Pilot Study of Hyperlactatemia After Albuterol Therapy

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Background: Inhaled short acting β2 agonists (e.g., albuterol) are the mainstay in the pharmacological management of patients with asthma or chronic obstructive pulmonary disease (COPD) who present to the emergency department with dyspnea. A number of case reports and a recent prospective sub-analysis have suggested an association between high dose inhaled short acting β2 agonists and hyperlactatemia in patients with refractory dyspnea. While the pathophysiology explaining this association is controversial, it has been postulated that albuterol therapy results in the production of type B lactic acidosis as a consequence of altered cellular metabolism. The clinical significance of this phenomenon is unclear, however hyperlactatemia and secondary lactic acidosis can lead to worsening respiratory symptoms, overuse of albuterol, and a subsequent worsening lactic acidosis.

Purpose: The primary objective of this study is to evaluate the effect of inhaled albuterol therapy on lactic acid concentrations in patients with mild, moderate or severe asthma or COPD exacerbations admitted to the Albany Medical Center (AMC) Emergency Department (ED) for the management of dyspnea. Methods: This study is an open label, prospective, exploratory pilot study approved by the AMC Institutional Review Board. A convenience sample of eligible patients with asthma or COPD presenting to the AMC ED requiring albuterol treatment for dyspnea will be enrolled over a 12 month period. Informed consent will be obtained for all subjects. Subject demographic information, albuterol treatments administered, and disposition will be collected. Blood samples will be collected at baseline (prior to albuterol therapy in the ED or as soon as possible) and after 2 hours or at discharge, whichever comes first. Blood sample information obtained for research purposes will be blinded to the treating healthcare team. Samples will be processed for lactic acid levels and standard blood gas analytes (pH, pCO2, pO2, HCO3-). All treatment decisions will be determined by the primary team. Albuterol administered prior to enrollment will be documented. A standard Visual Analog Scale perception of respiratory distress will be recorded by the patient and the primary nurse or respiratory therapist with each albuterol treatment. If clinically indicated, a Peak-Expiratory Flow Rate will be measured and recorded. Home medications that have been reported to cause lactic acidosis (e.g., metformin) will be documented. All patients enrolled in the study will receive a follow-up phone call after their ED visit if discharged or inquiry of the medical record if still inpatient to assess for discharge diagnosis, relapse, or presence of active respiratory complaints. Patient enrollment and data collection is currently ongoing.
ASSESSING THE IMPACT OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM WITH A RAPID ORGANISM DETECTION ASSAY IN THE TREATMENT OF PATIENTS WITH POSITIVE BLOOD CULTURES

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Purpose: This project will assess whether care in patients is improved after the implementation of rapid diagnostic technologies (MALDI-TOF, multiplex PCR) with interventions from the antibiotic stewardship program (ASP). Outcome measures to be evaluated include overall antimicrobial use, time to appropriate de-escalation, hospital length of stay, and occurrence of adverse drug reactions (including Clostridium difficile infections). **Methods:** This study will be a two-phased prospective chart review study. The first phase will involve a retrospective review of all patients with positive blood cultures between January 1st, 2014 and February 28th, 2014. The implementation of rapid diagnostic technologies (MALDI-TOF, multiplex PCR) as part of standard care will occur on January 1, 2015. The second phase will include patients admitted between January 1st, 2015 and February 28th, 2015. Data will be obtained through a chart review for patients with positive blood cultures using Sunrise EnterpriseTM and MeditechTM. The list of patients will be acquired through the microbiology department. Information to be collected will include: patient demographics, culture result, antibiotic(s) administered (including days of therapy), source of infection, the frequency of vancomycin levels, occurrences of any adverse events (ex. reactions, Clostridium difficile infection, and death), length of stay, and admission to the critical care unit. The inclusion criterion is any patient 18 years of age or older admitted to Long Island Jewish Medical Center with positive blood cultures. The exclusion criterion is any patient that did not receive antibiotics. Results and conclusion of this study are pending.

CLINICAL IMPACT OF PHARMACIST-DRIVEN EDUCATION ON CONTAMINATED BLOOD CULTURES IN A COMMUNITY TEACHING HOSPITAL

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**Purpose:** Contaminated blood cultures have been shown to increase antibiotic use, unnecessary laboratory testing, and length of stay which results in unnecessary healthcare costs. The objective of this study is to determine the impact of a pharmacist-led educational session to nurses and phlebotomists on the rate of contaminated blood cultures and days of pharmacist-monitored vancomycin therapy. **Methods:** The microbiology lab identified adult patients (≥18 years or older) that had contaminated blood cultures in the emergency department or hospital during the months of 12/2014 and 1/2015. Contamination was defined by the Clinical Laboratory Standards Institute’s criteria. The Institutional Review Board at St. Joseph’s Hospital granted the study exempt status. The monthly rate of blood culture contamination defined as the number of contaminants divided by the total number of blood cultures. Medical records were retrospectively reviewed for: collection site, hospital location, number of contaminants per phlebotomist/nurse, bacteria, single set cultures, empiric vancomycin initiated in response to a contaminated blood culture, days of pharmacist-monitored vancomycin consults, repeat blood cultures performed, and line changes in response to contamination. Based on identified trends, pharmacist-led educational sessions on the patient impact of contamination will be presented to the phlebotomists and nurses. Individual report cards will be provided. After the educational sessions, blood culture contamination data will be reviewed monthly. When possible, statistical analysis will be completed comparing pre- and post-education using the X² test or two-sided t-test as appropriate. **Results:** Pending. **Conclusion:** Pending.
IMPACT OF DISPENSE TO BEDSIDE PILOT PROGRAM ON READMISSIONS FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS AT A COMMUNITY HOSPITAL
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Background: Chronic obstructive pulmonary disease (COPD) creates a big burden with respect to hospital readmissions and healthcare costs. The current estimated national readmission rate for COPD patients is about 20.7%. When a patient gets discharged from the hospital, there could be many barriers preventing them from receiving needed medications such as accessibility of the pharmacy, issues with insurance companies and desire to get back home. By creating a dispense-to-bedside program, these barriers are avoided. Purpose: The purpose of this study is to improve 30-day readmission rates in COPD patients by providing education and a 30-day supply of COPD medication prior to discharge. Methods: This is a quality improvement study with a primary endpoint of 30-day readmission rate in COPD patients. When a patient with a primary diagnosis of COPD is ready to be discharged from the hospital, the patient is flagged for possible participation in this program. Patients are followed for 30 days to see if they are readmitted to the hospital. Readmissions are tracked and the rate will then be compared to the rate of 30-day readmission prior to the initiation of this program. A questionnaire is also used to evaluate patient’s opinions and satisfaction with the program. Results: At this point in the data collection, 30-day readmission rate data is provided for 27 out of a total of 39 patients enrolled in the study. Up to this point, four patients returned to the hospital within a 30-day time period. Data is currently being analyzed to determine if the program made a significant impact on 30-day readmission rate. Throughout the implementation of this program, providers and patients have shown great interest and satisfaction. Educating on new information or reinforcing existing knowledge has been valuable for patients upon discharge. Conclusion: This pilot program provides promise for expansion of the dispense to bedside program.

ASSESSMENT OF BODY TEMPERATURE RANGE AND VARIATION IN ELDERLY POPULATIONS IN A LONG-TERM CARE FACILITY
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Objective: The current literature suggests that elderly patients tend to have lower body temperature than younger subjects. Although the normal human body temperature is often stated as between 97.7 degrees Fahrenheit to 99.5 degrees Fahrenheit (or 36.5 degrees Celsius to 37.5 degrees Celsius), several studies have suggested that the aforementioned temperature range may not be applicable to the elderly population. The elderly population, primarily adults aged 65 or older, tend to have significantly lower body temperatures, ranging from 96.4 degrees Fahrenheit to 98.5 degrees Fahrenheit (or 35.8 degrees Celsius to 36.9 degrees Celsius). Individual-specific factors that cause body temperature variation include advanced age, sex, co-morbidities, concomitant medications, the site of measurement, and the time of the day when the body temperature is taken. The objective of this study is to evaluate the association of age with the morning tympanic temperature in non- acutely ill geriatric residents in a long-term care facility. Further, the study aims to investigate the effect of drugs on body temperatures, specifically in drug-induced hyperthermia (DIH). The study will characterize the four major DIH syndromes, including neuroleptic malignant syndrome, anticholinergic syndrome, sympathomimetic syndrome, and malignant hyperthermia. Methods: This is a retrospective, single center chart review, evaluating the morning tympanic temperatures of an expected number of 460 residents residing in the long-term care facility at the Kingsbrook Jewish Medical Center, NY. Nursing home residents who are older than or equal to 65 years old with documented morning tympanic temperatures will be reviewed. Each resident’s morning tympanic temperature will be collected over the three most recently recorded days during the study period. Exclusion criteria are residents identified with acute febrile illnesses and/or residents with antibiotic therapy during the study period, or residents with cancer. Baseline resident characteristics such as age, sex, race, past medical history, and medications will be assessed using the Student’s t-test where appropriate. Primary endpoint is the mean morning tympanic temperature stratified by age and sex to further characterize any potential differences. Secondary endpoint is the association of morning tympanic temperature with concurrent medications stratified by drug classes. Results: Pending. Conclusion: Pending.
Purpose: Broad anaerobic coverage is warranted in a number of infectious processes including but not limited to; aspiration pneumonia, intra-abdominal infection, diabetic foot infection, and pelvic inflammatory disease. Antibiotics with substantial anaerobic coverage include: Amoxicillin/clavulanate, Ampicillin/sulbactam, Cefotetan, Cefoxitin, Clindamycin, Doripenem, Ertapenem, Imipenem, Meropenem, Metronidazole, Piperacillin/tazobactam, Ticarcillin/clavulanate, and Tigecycline. Using more than one of these agents in combinations is a duplication of therapy. Inappropriate coverage of antibiotics is becoming an increasingly significant problem at hospitals around the world contributing to adverse drug events. Clostridium difficile infection, and wasted hospital resources. Unnecessary combinations of antibiotics with overlapping therapy are a part of this problem. There is no data or guidelines supporting the use of two antibiotics with anaerobic coverage in clinical practice, yet it is still commonplace in practice. The objective of this study is to evaluate whether providing overlapping anaerobic coverage will improve outcomes in hospitalized patients suffering from infectious processes associated with anaerobic pathogens.

Methods: This is a retrospective, single-centered, case-controlled study. Patient demographic information will be obtained using case report forms. The institutions electronic database will be utilized to identify patients 18 years or older admitted to acute care (non ICU) of Kingsbrook Jewish Medical Center over the past 3 years with a diagnosis of aspiration pneumonia, diabetic foot infection, intra-abdominal infection, and pelvic inflammatory disease. Criteria for exclusion will be patients who received a beta lactam in combination with either, metronidazole for treatment of infection with Clostridium difficile toxin or clindamycin for necrotizing fasciitis. The three groups observed will be anaerobic coverage, beta-lactam alone, anaerobic coverage beta-lactam plus metronidazole or clindamycin, and metronidazole or clindamycin alone. The effectiveness of treatment will be assessed by 7-day mortality, 30-day mortality, time to discharge, resolution of leukocytosis, and time to transfer to ICU. By assessing these outcomes we hope to produce new evidence that overlapping anaerobic coverage is unnecessary. No patient consent will be required due to retrospective nature of this study, and all data will be documented without patient identifiers. This study has been approved by the Institutional Review Board.

MEDICATION USE EVALUATION OF INSULIN DETEMIR IN PATIENTS WITH TYPE II DIABETES MELLITUS AT MONTEFIORE MEDICAL CENTER

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Purpose: Type II diabetes mellitus (DM) accounts for 95% of the patients diagnosed with DM, and is characterized by relative insulin deficiency and insulin resistance. Although initial treatment consists of oral anti-hyperglycemic agents, it may not provide adequate blood glucose control to some patients who will require insulin. This academic medical center recently replaced insulin glargine with detemir as its formulary long-acting insulin product. The purpose of this retrospective study is to evaluate the safety and efficacy of insulin detemir on blood glucose control and the incidence of hypoglycemia. Methods: Adult patients (>18 years old) admitted between February and June 2014 with documented ICD-9 (International Classification of Diseases, 9th ed.) codes 250.0 and 250.02 will be identified from the hospital medical record database and included if they meet the American Diabetes Association (ADA) Type II DM criteria (hemoglobin A1c>7%). Patient-specific data collected will include height, weight, race, co-morbidities, home medications, as well as hemoglobin A1c and serum creatinine on admission; glomerular filtration rate will be calculated for each patient. Daily insulin dose, frequency of administration, and type (detemir, lispro, NPH) will be reviewed. Hypoglycemic episodes (blood glucose<70 mg/dL) will be quantified and analyzed. Effectiveness of blood glucose control will be assessed by evaluating levels measured prior to each insulin detemir dose throughout the duration of hospitalization. Data will be analyzed using descriptive statistics. Patient informed consent is waived due to the retrospective nature of this patient chart review. Results: Based on our evaluation both basal insulin formulations show a similar variation in glucose lowering 24 hours after administration. About 62 percent of glucose levels, 24 hours after administration of either basal insulin formulations remained less than 200 mg/dL during their hospital stay. Conclusions: This retrospective evaluation suggests that both basal insulin formulations are equally efficient in improving glycemic control 24 hours after administration. Quality improvement measures should be taken to further improve patients’ glucose levels during their inpatient hospital stay.
ASSESSING THE IMPACT OF A PRESCRIBING GUIDELINE ON ANTIBIOTIC SELECTION FOR MILD SKIN AND SOFT TISSUE INFECTIONS AFTER INCISION AND DRAINAGE IN THE EMERGENCY DEPARTMENT

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**Purpose:** The Infectious Diseases Society of America practice guideline update for skin and soft tissue infections (SSTI) recommends incision and drainage (I&D) for carbuncles, furuncles, and abscesses as primary treatment. With the emergence of antibiotic resistance among skin pathogens, routine use of antibiotics for mild abscesses should be reconsidered. The objective of this study is to determine if a quality improvement educational intervention and a prescribing guideline for emergency department (ED) physicians will decrease the prescribing of antibiotics for mild purulent SSTI requiring I&D. **Methods:** This is an Institutional Review Board approved, single-center, pre- and post-intervention retrospective chart review of antibiotic prescribing. Patients included are non-immunocompromised and 18 years of age or older, presenting to the ED and subsequently discharged, who underwent I&D for a mild abscess without systemic signs of infection. An educational interventional in addition to an evidence based standard of practice treatment guideline designed by the pharmacy department will serve to aid in the prescribing of adjunct antibiotics for SSTI after I&D in the ED. Data was collected using the ED electronic record. Patients presenting to the ED for SSTI requiring I&D were identified from a six month period prior to prescribing guideline development. Results from post-intervention data collection after guideline development are compared to pre-intervention results. **Results:** Outcome measures to be presented include the number of discharge antibiotics prescribed and the specific discharge antibiotic regimen prescribed for patients receiving I&D. Pre-intervention chart review of 244 patients yielded 41 eligible patients. Of these patients, 18 (43.9%) were discharged with antibiotic monotherapy, 23 (56.1%) with dual antibiotic therapy, and zero patients discharged without antibiotic therapy. A total of 21 patients (51.2%) were discharged with combination trimethoprim/sulfamethoxazole plus cephalexin, 8 (19.5%) patients with trimethoprim/sulfamethoxazole alone, and 6 (14.6%) patients with cephalexin alone. **Conclusion:** The current practice of antibiotic prescribing for patients presenting with mild purulent abscesses discharged after I&D is variable within the emergency department and inconsistent with IDSA guidelines. We hypothesize that an educational intervention and a prescribing guideline for ED providers will decrease unnecessary and inappropriate antibiotic prescribing in this patient population.

EVALUATION OF SOFOSBUVIR AND SIMEPREVIR COMBINATION THERAPY IN AN HCV/HIV CO-INFECTED POPULATION

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**Background:** Combination treatment with sofosbuvir and simeprevir with or without ribavirin has resulted in >90% sustained virologic response (SVR) rates in HCV mono-infected patients. Although the combination of these two new direct acting antivirals (DAAs) are recommended for treatment in both mono-infection and co-infection, SVR rates with this regimen in co-infection have not yet been reported. **Hypothesis:** We hypothesize that using this combination regimen in HCV/HIV co-infection will result in overall SVR rates 12 weeks post treatment (SVR12) similar to those achieved in mono-infected HCV GT 1 infected populations treated with the same regimen (SVR12 >90%). **Methods:** Multi-centered, retrospective chart review of HCV/HIV co-infected patients from April 2014 to December 2014. The SVR rates achieved in this study will be compared to the historical data of SVR rates in the COSMOS study. The objective of the study is to investigate the efficacy and safety of sofosbuvir and simeprevir combination in a real-world urban HCV/HIV co-infected patient population. The primary endpoint is HCV RNA 12 weeks post treatment and secondary endpoints include HCV RNA at 4 weeks of treatment, end of treatment response, adverse effects, and HIV RNA levels. **Results:** Preliminary data will be collected and results will be presented. **Conclusions:** Currently a research gap exists in the treatment of HCV in HCV/HIV co-infected populations. The preliminary data presented will allow for further insight into the efficacy of combination sofosbuvir and simeprevir in co-infected populations by comparing SVR rates to mono-infected populations.
EVALUATION OF POST-INTUBATION SEDATION IN THE EMERGENCY DEPARTMENT
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**Background:** Sedation is an essential component of the treatment plan for a patient that has been intubated, as mechanical ventilation is painful and causes significant anxiety for patients. Current emergency medicine curricula emphasizes the technique utilized during rapid-sequence intubation, but focuses little on the care of the patient after intubation. Although there is little literature on sedation protocols in the emergency department (ED), the data currently available suggests that post-intubation sedation is not appropriately managed in the ED. Therefore, this study tests the hypothesis that post-intubation sedation is not appropriately managed in the emergency department. **Methods:** This retrospective chart review was submitted to the Pharmacy and Therapeutics committee for approval. All patients intubated in the emergency department at Buffalo General Medical Center between June 2011 and June 2013 and remained in the ED for at least 30 minutes post-intubation were included. The following data is being collected: baseline patient demographics, medications used to maintain sedation post-intubation, time to administration of any sedation medication, time to administration of appropriate sedation medication, amount of time spend in the ED after intubation, total number of doses of benzodiazepines, changes made in sedation medications after the patient was admitted to the intensive care unit, and whether or not the patient required treatment for delirium. **Outcomes:** The primary endpoint is to determine the time to first dose of sedation medication in the ED. Secondary endpoints include determining the medications most frequently used in the ED to manage post-intubation sedation, determining the frequency that sedation orders were changed upon admission to the intensive care unit and the time frame in which this occurred, and the number of patients who received paralytics for post-intubation sedation. Data collection is currently in process.

EVALUATION OF THE USE OF PHENOBARBITAL FOR ALCOHOL WITHDRAWAL SYNDROME IN A MEDICAL INTENSIVE CARE UNIT
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**Purpose:** Alcohol withdrawal is commonly encountered in hospitals with mortality rates ranging from 5-20% and often requires pharmacotherapy to manage. The goal in managing alcohol withdrawal is to minimize symptom severity and prevent major complications. Benzodiazepines are widely accepted to be the drug of choice for the management of alcohol withdrawal; however there are incidences of benzodiazepine resistant alcohol withdrawal. Furthermore, benzodiazepines carry potential for abuse. Phenobarbital is a long acting barbiturate that may be used as an alternative to benzodiazepines. The purpose of this study is to evaluate the use of phenobarbital for alcohol withdrawal syndrome. The results of this study will be used to formulate and design a standardized institution specific protocol for alcohol withdrawal management with phenobarbital in our medical intensive care unit (MICU). **Methods:** This study was approved by the institutional review board (IRB). Patients admitted to Long Island Jewish Medical Center (LIJMC) for the treatment of alcohol withdrawal syndrome with phenobarbital was identified from a generated list on the hospital’s electronic medical records system (Sunrise®). A retrospective chart review was conducted on eligible patients and pertinent data was collected. Data including patient age, sex, weight, height, aspartate aminotransferase (AST), alanine aminotransferase (ALT), length of stay (LOS) in the MICU, LOS in the hospital, total daily dose of phenobarbital, phenobarbital levels (if available), number of scheduled phenobarbital doses held, number of ventilator days, and number of other PRN doses given (e.g., benzodiazepines, haloperidol). The primary outcome measure is the average LOS in the MICU. Secondary outcomes will include LOS in the hospital, the total daily dose of phenobarbital, ventilator days secondary to respiratory depression, number of scheduled phenobarbital doses held, and number of other PRN doses given. **Results:** Pending. **Conclusions:** Pending.
FREQUENCY OF CLOSTRIDIUM DIFFICILE DIARRHEA AND OTHER ADVERSE EFFECTS WITH CEFEPIME VERSUS PIPERACILLIN-TAZOBACTAM
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Purpose: Approximately 50% of hospitalized patients receive at least one antimicrobial during their stay. Often broad-spectrum agents such as piperacillin/tazobactam are selected for empiric coverage. Recent data suggest that piperacillin/tazobactam may additively contribute to acute renal injury. In light of this new data, several institutions have shifted from empirically using piperacillin/tazobactam to using cefepime. However, the use of cefepime has been associated with a different adverse effect profile, including the increased risk of Clostridium difficile infection (CDI). Methods: This is a prospective, single-center study that will evaluate all patients admitted to the hospital who received either piperacillin/tazobactam or cefepime for treatment of an infection. Patients will be excluded if they are < 18 years of age or > 90 years of age or pregnant. Additional exclusion criteria include antibiotic administration ≤ 48 hours or hospital length of stay ≤ 48 hours. The primary outcome to be investigated is the frequency of symptomatic CDI. Secondary outcomes to be investigated include intensive care unit (ICU) and hospital length of stay, length of exposure to antibiotics, and other adverse effects such as non-CDI diarrhea, electrolyte abnormalities, infusion-site reactions, and thrombocytopenia. Results: The frequency of adverse effects in patients receiving either piperacillin/tazobactam or cefepime, including new-onset CDI, will be presented. Conclusion: It is anticipated that this study will determine differences in the safety profile of cefepime and piperacillin/tazobactam, including a higher frequency of CDI in patients receiving cefepime.

IMPACT OF MEMBER ENGAGEMENT THROUGH COMPREHENSIVE MEDICATION REVIEW (CMR) COMPARED TO AUTO-GENERATED TARGETED MEDICATION REVIEW ON MEDICATION THERAPY MANAGEMENT (MTM) PROGRAM OUTCOMES
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Background: Medication Therapy Management’s (MTM) ability to improve patient outcomes was demonstrated in a 2013 report prepared for the Centers for Medicare and Medicaid Services (CMS) by Acumen, LLC. The report revealed an overall improvement in adherence and quality of prescribing across program lines. Purpose: We sought to validate the impact of comprehensive medication review (CMR) delivered through direct pharmacist interaction by demonstrating improved performance compared to targeted medication review (TMR) without direct patient engagement. Specifically, hospital admission and readmission rates were evaluated. Methods: Members eligible for MTM were identified quarterly based on predetermined criteria directed and approved by CMS. Those members continuously enrolled from January 1st, 2011 through December 31st, 2013, were newly eligible for MTM in 2012, and did not opt-out of the program were included for analysis. Members involved in long term care, less than 65 years old, or who had unmatched database information were excluded from the study. The MTM participants were then placed into one of two groups: those who have completed a CMR with a pharmacist, and those who had only TMRs without direct engagement. Medical claim records were used to identify hospital admission and readmissions rates and represent the primary outcome of our study. Secondary outcomes include adherence to select medications, identified gaps in patient care, high risk medication use, and impact on total cost of care. Data were extracted from pharmacy claims records as well as the MTM documentation and reporting tool Mirixa. Descriptive statistics tested significance across groups with TMR weighted to match CMR distribution for number of medications, chronic conditions, and age. The scope of this study did not require Institutional Review Board approval. In 2012, CDPHP determined 4,219 members were eligible for MTM services. 42% of which met the eligibility requirements for inclusion in this study (n=1,792). Additional criteria excluded an additional 191 members. A total of 1,570 members received either a CMR (n=340) or TMR (n=1234) and were included in the final analysis. Results: The results of this study are expected to demonstrate the superiority of a CMR compared to TMR in its ability to reduce hospitalizations and readmissions. We also expect to see a decrease in total cost of care, non-adherence, and gaps in care. Subgroup analysis will establish the characteristics of those most likely to benefit from MTM services. Our findings are expected to support the cost-effectiveness of MTM and support the expansion of direct patient engagement with a pharmacist.
Future studies should consider measuring patient safety outcomes according to the guidelines. Further education of roflumilast to healthcare providers and if further education is warranted for our healthcare providers and pulmonary consultation is encouraged. The electronic medical record and computerized physician order entries were examined to evaluate the appropriateness of the roflumilast orders. The data was analyzed for the primary endpoint which included: risk assessment based on number of exacerbations, previous COPD therapy for proper classification, current COPD regimen with roflumilast, age, and weight. The secondary endpoint evaluated if the first dose of roflumilast was initiated within the inpatient or outpatient setting. These results determined roflumilast’s formulary placement, effects on patient safety, and if further education is warranted for our healthcare providers. This study was submitted to the Institutional Review Board for review and approved for exemption. Results: A total of 41 unique patients were included within the study with 59 documented COPD cases. The average patient was 70 years old with similar baseline characteristics and 59% were females. The primary outcome reveals a total of 69.5% (41/59) of the improper use of roflumilast based on the most updated guidelines. 75% of the cases received pulmonary consultation. Secondary endpoint showed the first dose of roflumilast was ordered and initiated inpatient in 63% (26/41) of the patients. Conclusion: Significant number of patients on roflumilast are not utilizing the agent according to the guidelines. Further education of roflumilast to healthcare providers and pulmonary consultation is encouraged. Future studies should consider measuring patient safety outcomes.
POST-CABG PATIENT SATISFACTION WITH PHARMACIST-LED MEDICATION EDUCATION
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**Background:** Quality outcomes associated with coronary artery bypass graft (CABG) surgery are of interest because the procedure is often associated with complications such as heart failure, new onset atrial fibrillation, and recurrent myocardial infarction. As a part of post-operative management, current standards of care recommend patients receive aspirin and/or clopidogrel, a statin, a beta blocker, and an angiotensin converting enzyme inhibitor or angiotensin II receptor blocker to help prevent these complications. For patients who were not on complex medication regimens previously, the sudden addition of several new medications may be confusing and overwhelming. Patients who receive inadequate discharge medication education may not fully understand why they have been initiated on multiple medications as well as the importance of medication compliance. Pharmacists possess a unique skill-set to improve patient understanding of their discharge medications and may enhance overall satisfaction. **Methods:** This is a prospective, randomized, single-blinded study evaluating patient satisfaction and comprehension of medication counseling. The study has been approved by the University at Buffalo IRB. Patients ≥18 years of age who presented to Buffalo General Medical Center for CABG surgery or CABG and valve surgery between February 2015 through December 2015 will be prospectively randomized to two groups: pharmacist or nurse-led education in a one to one ratio. Patients who were less than 18 years of age, pregnant, reliant on home caregivers/unable to perform activities of daily living, unable to provide consent, discharged to a facility other than home, and those previously admitted for CABG surgery were excluded. **Objectives:** The primary objective of this study is to evaluate patient satisfaction and comprehension with pharmacist-led medication counseling compared to the current standard of care, nurse-led medication education. Secondary outcomes include 30-day all-cause readmission rates and number of changes in medications from initial admission to initial discharge. **Results:** The results of this study will provide valuable information regarding a pharmacist’s impact on patient satisfaction and understanding of their discharge medication.

ASSESSING OUTCOMES OF PHARMACIST DRIVEN MEDICATION RECONCILIATION AND DISCHARGE MEDICATION COUNSELING OF HOSPITALIZED HIGH- RISK STROKE PATIENTS.
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**Purpose:**
The transition of care from the community to the hospital, or vice versa, puts patients at a high risk for drug related problems. This may lead to hospitalizations or an increased length of stay at the hospital, many of which can be prevented. Studies have shown that pharmacist driven medication reconciliation and medication counseling reduces hospital visits. The objective of this study is to assess the impact of medication reconciliation and medication education by pharmacists prior to discharge of high-risk stroke patients. **Methods:** Men and women aged 18 or older who were admitted for stroke and are taking one or more high risk medications, will be identified. Patients admitted to the ICU, not discharged home, who refuse medication counseling, are aphasic, or have planned readmissions, are excluded. Upon providing written informed consent, patients will be randomized to two groups, one of which will be receiving medication discharge counseling from a pharmacist and one who will not. Medication reconciliation and a follow-up phone call within 3 days of discharge will be provided for patients in both groups by a pharmacist. During the follow-up phone call, all patients will be assessed on their medication adherence and knowledge. The primary outcome measure will assess medication adherence post discharge. Secondary outcomes include rate of medication reconciliation discrepancies, readmission to hospital within 30 days, and patient satisfaction scores. This research was approved by the institutional review board and informed consent was obtained for all subjects. All data will be recorded without patient identifiers to maintain confidentiality. The results will be analyzed by a biostatistician to measure the association between readmission at 30 days and the two groups. The rates of medication errors, patient adherence scores between groups, and patient satisfaction scores post discharge will also be analyzed. **Results & Conclusion:** Pending.