IMPROVING COMPLIANCE WITH INTRAVENOUS SM­ART PUMP DOSE ERROR REDUCTION SYSTEMS IN AN ACADEMIC MEDICAL CENTER

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**Background:** Smart infusion pump dose error-reduction systems (DERS) technology has set a new standard for safe intravenous medication administration. The Institute for Safe Medication Practices (ISMP) found that only 79% of nurses utilize the DERS at least 90% of the time due to medications missing from the drug library and preference to use basic infusion mode in emergency situations.

**Objectives**: To comply with ISMP’s recommendation to maintain 95% DERS compliance, the goal of this performance improvement project is to increase the percentage of infusions being run with DERS within the health system from 79% to 95% by July 2021.

**Methods**: Barriers to DERS compliance were identified through direct communication with the nursing staff. Barriers were analyzed in a pareto chart and two tests of change were implemented consecutively: update to the library maintenance process and implementation of a nurse auditing tool. Data from the smart pump software were collected biweekly and analyzed in a run-chart to identify the impact of each test of change on DERS compliance.

**Results**: Improving the library update process improved compliance from 79% to 86%. Implementation of a nurse auditing tool, however, led to fluctuating compliance.

**Conclusions**: In order to achieve 95% compliance with DERS by July 2021, further tests of change are necessary. Subsequent cycles will address additional barriers such as limited reporting tools, lack of awareness of the importance of DERS use, and excessive alerts that discourage nurses from using DERS.

PROPHYLACTIC ENOXAPARIN IN TRAUMA PATIENTS: IDENTIFYING AN INITIAL DOSE

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**Background**: Trauma patients are at increased risk for developing a venous thromboembolism due to alterations in the coagulation cascade. Concerns for decreased enoxaparin bioavailability and augmented renal clearance in this patient population is supported by recent evidence that suggests higher enoxaparin doses may be required. Enoxaparin 30 mg subcutaneously twice daily adjusted based on anti-factor Xa (AFXa) trough levels is a regimen commonly initiated in trauma patients. The AFXa trough goal in this population ranges from 0.1 to 0.2 IU/mL. This study was conducted to further investigate the dosing conundrum.

**Objective**: The purpose of this study was to identify the frequency of critically ill trauma patients who required a standard prophylactic enoxaparin dose of 30 mg subcutaneously twice daily to achieve AFXa trough levels between 0.1 to 0.2 IU/mL and to identify patient characteristics that may have influenced this dosing regimen.

**Methods**: This was a retrospective, single-center, descriptive cohort study that was exempt from review by our Institutional Review Board. Adult patients admitted to the surgical intensive care unit secondary to trauma who received prophylactic enoxaparin monitored by AFXa trough levels were included. Patient demographics and clinical data were collected.

**Results:** Of the 76 patients included thus far, 15.8% (n = 12) have obtained a therapeutic AFXa trough level on standard prophylactic enoxaparin dosing.

**Conclusions**: Data collection/analysis are currently ongoing. Final results will be presented at the Residency Research and Practice Forum in May 2021.

RETROSPECTIVE REVIEW OF POST-OPERATIVE OPIOID REDUCTION SECONDARY TO PRE-OPERATIVE GABAPENTIN USE IN PATIENTS UNDERGOING BARIATRIC SURGERY

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**Background**: Utilizing gabapentinoids perioperatively has been shown to reduce the number of opioids needed in the post-operative setting. While opioids are a common pain management strategy in the pre-operative and post-operative settings, further evaluation is needed to limit opioid consumption given the current opioid abuse epidemic. With the increasing popularity of bariatric surgeries, developing pain management strategies to reduce opioid consumption is crucial. This study aims to further evaluate the use of gabapentin pre-operatively in patients undergoing different forms of bariatric surgery and its associated opioid use post-operatively.

**Objective**: The primary outcome is the effect gabapentin has on total morphine milligram equivalents (MME) post-operatively in bariatric surgery patients.

**Methods**: This was a single-center, retrospective chart review that compared MME in patients who received at least one dose of gabapentin pre-operatively versus those who did not. Data was collected between 01/01/2018 to 12/31/2020. Patients were matched based on age, gender, race, allergy, and type of bariatric surgery received.

**Results**: A total of 180 patients were identified during this period. 151 patients met inclusion criteria, with 48 patients receiving at least a single dose of gabapentin pre-operatively and 103 patients who did not. Mean MME in those who received gabapentin was 23.46 compared to 32.1 in those who did not receive gabapentin (p = 0.0309).

**Conclusions**: Utilizing gabapentin pre-operatively may reduce the need for opioids post-operatively in patients undergoing bariatric surgery.

Reducing opioid use in bariatric surgery at an acute care medical center

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**Background**:Optimal pain management in surgery is an important factor in patients’ satisfaction and outcomes. Over the years, opioid use in bariatric surgery (BS) had some untoward effects including increasing patients’ length of stay. However, studies have shown that multimodal approaches to pain control are effective in surgery. A quality improvement project was initiated at Montefiore Medical Center (MMC) by Bariatric Surgery and Pharmacy to reduce opioid use in this surgical population.

**Objective**: To reduce by 80% from baseline the morphine equivalent dose (MED) of opioids used in bariatric surgery by July 2021.

**Methods**:Eligible bariatric patients at MMC were enrolled from August 2020 to July 2021. A process map was developed to visualize patients’ flow from admission to discharge. Baseline data on the MED of opioids used was collected prior to any intervention. The Bariatric Surgery Targeting Opioid Prescriptions (BSTOP) protocol which was developed as an opioid reduction strategy, was tested in patients following a PDSA (Plan-Do-Study-Act) methodology. The major opioid reduction strategies in BSTOP include patient and provider education; multimodal pain strategies involving acetaminophen and gabapentin, regional anesthesia; and perioperative opioid minimization. Monthly opioid MEDs collected after BSTOP’s implementation was plotted on a chart to assess MED changes from baseline.

**Results**: From August 2020 to January 2021, we observed a 37% reduction of MED inpatient opioids and a 100% decrease in fentanyl PCA use.

**Conclusion**: Implementing the BSTOP protocol has reduced opioid use in our BS patients. Monthly data and BSTOP’s compliance will be assessed till project completion.

ASSESSING THE ROLE OF THE PHARMACIST IN MANAGING CHEMOTHERAPY INDUCED NAUSEA AND VOMITING IN PATIENTS RECEIVING CHEMOTHERAPY

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**Background:** Chemotherapy induced nausea/vomiting (CINV) is considered one of the most debilitating adverse events among patients receiving chemotherapy. CINV can negatively impact a patient’s quality of life and may affect adherence with their treatment plan. The National Comprehensive Cancer Network (NCCN) recommends a three to four medication combination to prevent breakthrough CINV in highly emetogenic chemotherapy regimens. There is limited literature available on the role of the pharmacists in managing CINV patients. Despite NCCN recommendations patients are not consistently optimized on their antiemetic regimens due to medication non-adherence, and physician treatment preference. This is where pharmacists are able to play a key role in patient therapy. As experts in pharmacotherapy, pharmacists can help manage patient’s CINV regimens to optimize therapy.

**Objective:** The objective of this study is to assess the impact of pharmacist interventions on the incidence of breakthrough CINV in patients receiving chemotherapy in an outpatient oncology clinic.

**Methods:** We will conduct a retrospective chart review of patients that were prescribed anti-emetic medications for chemotherapy from July 2018 to November 2018 and July 2020 to November 2020 after implementation of clinical pharmacists in the oncology clinic. Patient’s charts will be examined for chemotherapy regimen and anti-emetic regimen. Data will be collected from Allscripts and documented in a password-protected Excel spreadsheet. This study was approved by the investigational review board at BronxCare Health System.

**Results:** Research in progress

**Conclusion:** Research in progress

CEFTRIAXONE 1 GRAM VERSUS 2 GRAMS IN THE TREATMENT OF ENTEROBACTERALES BACTEREMIA

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**Background:** Ceftriaxone is a commonly used antibiotic for the treatment of susceptible Enterobacterales infections, including bacteremia. There is currently limited comparative data on the optimal dose of ceftriaxone for Enterbacterales bacteremia and clinical outcomes of patients.

**Objectives:** To evaluate the rate of clinical failure of ceftriaxone 1 gram versus 2 grams in patients with Enterbacterales bacteremia.

**Methods:** This was a retrospective, observational study of patients admitted to any of the three NYU hospitals: Long Island, Tisch and Brooklyn campuses, with ceftriaxone susceptible Enterobacterales bacteremia, receiving ceftriaxone 1 or 2 grams from October 2019 to September 2020. The primary outcome was treatment failure within 30 and 90 days. Treatment failure was defined as escalation of therapy, relapse of infection, or all-cause mortality. This study a was approved by the Institutional Review Board.

**Results:** A total of 124 patients were included in this study. There was no statistically significant difference found in the primary outcome. The 30-day and 90-day rate of clinical failure was 13.9% vs. 9.6%; P= 0.47 and 16.7% vs. 9.6%; P= 0.26, respectively. Marked hypoalbuminemia was associated with greater risk of 90-day treatment failure (Odds ratio, 5.4; 95% CI, 1.619-18.013).

**Conclusion:** In the treatment of Enterobacterales bacteremia, there were no statistical differences of 30-day or 90-day rates of clinical failure between ceftriaxone 1 gram versus 2 grams, though there was a trend towards increased rates of failure with the 1-gram group. Marked hypoalbuminemia was an independent factor associated with treatment failure. A prospective study may be warranted to confirm these findings.

EVALUATION OF ANTIMICROBIAL USE AND PRESCRIBING PATTERNS DURING THE COVID-19 PANDEMIC IN PATIENTS RECEIVING TOCILIZUMAB

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**Background:** Severe acute respiratory syndrome coronavirus-2 infected patients experience systemic inflammation and respiratory distress, which appears to be associated with increased cytokine release, as demonstrated by elevated levels of C-reactive protein, D-dimer, and interleukins. During the peak of coronavirus disease 2019 (COVID-19), Northwell Health used tocilizumab to treat critically ill patients with potential cytokine storm. However, tocilizumab has a boxed warning for an increased risk of developing serious infections, such as tuberculosis, invasive fungal infections, bacterial, and viral infections.

**Objective:** The purpose of this study is to describe the antimicrobial prescribing patterns in COVID-19 patients with and without tocilizumab. The primary endpoint is usage of antimicrobials in patients treated with tocilizumab compared to those not treated with tocilizumab, including the antimicrobial coverage prescribed, time to antibiotic use, and days of therapy. The secondary endpoints are development of a secondary infection, type of infection, hospital length of stay, 30 day all-cause mortality, 90 day all-cause mortality, and outcome of secondary infection.

**Methods:** This retrospective observational chart review has been approved by the Institutional Review Board of Northwell Health and evaluates patients admitted with COVID-19 from March 2020 to November 2020. Patients were included if they were COVID-19 positive and received at least 1 dose of tocilizumab for the treatment group. The control group consisted of patients on remdesivir because similar criteria for supplemental oxygen was required. Antimicrobial prescribing patterns were recorded.

**Results:** Pending

**Conclusion:** Pending

COMPARISON OF ESTIMATES OF VANCOMYCIN AREA-UNDER-THE-CURVE: ACCURACY OF FOUR FREE ONLINE ADAPTIVE VANCOMYCIN DOSING CALCULATORS VERSUS THE LINEAR-LOG TRAPEZOIDAL RULE AND TWO POST-DISTRIBUTIONAL VANCOMYCIN CONCENTRATIONS

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**Background:** The revised consensus guidelines for vancomycin monitoring recommend monitoring area-under-the-curve (AUC) in patients with methicillin-resistant *Staphylococcal aureus*​ (MRSA) infections. AUC can be estimated using Bayesian dosing software or the linear-log trapezoidal rule and two post-distributional vancomycin concentrations.

**Objective:** This study sough to assess the accuracy of the vancomycin AUC estimates from four free online adaptive vancomycin dosing calculators versus the linear-log trapezoidal rule and two post-distributional vancomycin concentrations (reference method).

**Methods:** This retrospective cohort study was granted exempt status by the Institutional Review Board. Included patients had a vancomycin AUC calculated using the reference method and additional vancomycin AUCs were estimated using patient specific information and the four free online adaptive vancomycin dosing calculators from ClinCalc.com (CC), TDMx, VancoPK.com (VPK), and Detroit Medical Center (DMC). Accuracy was calculated by dividing the calculator AUC by the reference AUC.

**Results:** To date we have estimated the vancomycin AUCs of 61 patients. Preliminary median (IQR) accuracy of the adaptive vancomycin calculators versus the reference method was: VPK: 1.01 (0.77 – 1.14); DMC: 1.02 (0.82 – 1.30); TDMx: 0.95 (0.76 – 1.23); and CC: 0.86 (0.69 – 1.00).

**Conclusion:** A preliminary analysis showed that all four free online adaptive vancomycin dosing calculators had good accuracy versus the reference method for estimating vancomycin AUC; VPK appeared to have the best accuracy. Data collection and analysis are ongoing, the final results and conclusion will be presented at the NYSCHP Residency Research and Practice Forum.

EVALUATION OF ORAL ANTINEOPLASTIC AGENTS ADHERENCE AND EDUCATION

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**Background**: Although patients can conveniently take oral antineoplastic agents at home, patients still require laboratory monitoring and physical assessments to monitor therapy. Previous studies have demonstrated a negative correlation between the incidence of medication side effects and adherence.

**Objective**: The primary objective is to observe the relationship between subjective side effect rating and adherence to oral antineoplastic agents. The secondary objective is to observe hospital admission or readmission after a pharmacist initiated survey and education.

**Methods**: Patients receiving oral antineoplastic agents were identified in the inpatient and infusion center setting. A survey was conducted to assess patient adherence and reported side effects. Patient counseling and chemotherapy education was provided as needed.

**Results**: A total of 94 patients were identified and reviewed. Interviews were conducted for 43 patients. The median age was 71.5 years. The most common form of cancer was breast cancer (31.9%), and hormonal chemotherapy was the most common antineoplastic class taken by this cohort (38.3%). Eleven patients (25.6%) reported missing doses, with 6 of these patients (14%) reporting missing more than one dose in one week. In patients with poor adherence, the average side effect rating was 1.4 out of 5. Of all patients who rated their side effects 3 or greater (8 patients), 3 patients (37.5%) were non-adherent. Five patients (11.6%) had a recurring readmission within 60 days after the initial encounter, with this group separately analyzed to have an average side effect rating of 1.2.

**Conclusions**: Patients with a higher side effect rating showed lower adherence.

EVALUATION OF ANTICOAGULATION SAFETY & EFFICACY POST-HOSPITALIZATION IN COVID-19 PATIENTS: AN OBSERVATIONAL STUDY

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**Background**: Thromboembolic events are a profound complication in patients infected with the novel coronavirus (COVID-19, SARS-CoV) that has prompted clinicians to treat COVID-19 patients with thromboprophylaxis or therapeutic anticoagulation. The Journal of the American College of Cardiology (JACC) 2020 guidelines on COVID-19 and Thrombotic or Thromboembolic Disease state that it is reasonable for patients at high risk for thrombotic events to be discharged with pharmacologic prophylaxis for up to 45 days post-discharge; however, there is little guidance on how to approach patient follow-up. We aim to assess the frequency of follow-up visits for COVID-19 positive patients who were discharged with anticoagulation for the safety of therapy.

**Objectives**:

1. To assess the frequency of follow-up visits for COVID-19 positive patients who were discharged with anticoagulation
2. To evaluate the safety of anticoagulation in COVID-19 patients post-discharge

**Methods**: This study was approved by the institutional review board at BronxCare Health System (BCHS). It is a retrospective chart review of adult patients who were admitted to BCHS, tested positive for COVID-19, and were discharged with anticoagulation therapy such as enoxaparin, warfarin, apixaban, rivaroxaban, or dabigatran for COVID-19-related thrombotic events or thromboprophylaxis from March to June 2020. We will use the electronic medical records to assess whether patients were scheduled for follow-up visit, attended follow-up visit, and identify any anticoagulation-related adverse events documented in patient charts or emergency department visits.

**Results**: Data collection in progress

**Conclusions**: In progress

EVALUATING USAGE OF CALCITONIN, ZOLEDRONIC ACID, AND DENOSUMAB FOR ACUTE MANAGEMENT OF HYPERCALCEMIA

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**Background:** Hypercalcemia is a relatively rare occurrence in adults. Our formulary guidelines suggest intravenous fluids first, zoledronic acid, and then calcitonin for the treatment of hypercalcemia with weight-based fixed dosing recommendations. Denosumab is not addressed in the formulary guidelines but has been used in this setting. The purpose of this study was to determine the compliance with formulary guidelines, efficacy of the medications at lowering calcium levels, and assess the need for an institutional hypercalcemia management algorithm.

**Objective:** The primary efficacy outcome was to determine the percentage of time formulary guidelines were followed and assess the average decline of serum calcium after medication administration. The primary safety endpoint was determined by the presence of hypocalcemia.

**Methods:** This was a retrospective chart review of all patients age 18 and over who received zoledronic acid, calcitonin, or denosumab for hypercalcemia during hospitalization from January 2016 to August 2020. Patients were excluded if they did not have at least one repeat calcium level within 24 hours following medication administration. Data collected included patient demographics, clinical and laboratory data. All calcium levels were assessed at prespecified time points. Results were analyzed utilizing appropriate descriptive statistics. Institutional review board approval was obtained.

**Results:** There were 26 patients reviewed in this study. Institutional guidelines were followed 15% of the time. Average decline of calcium during a patient’s treatment was 3.17 mg/dL (Range: -1.9 to 9.14). Hypocalcemia occurred in 13 patients.

**Conclusion:** The results will be used to create an institutional hypercalcemia management algorithm.

POTENTIAL IMPACT OF GENE THERAPY IN HEMOPHILIA A

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**Background:** Hemophilia is a congenital bleeding disorder that is characterized by spontaneous bleeding episodes that can be life threatening. Roctavian (valoctocogene roxaparvovec), formally referred to as Valrox, is a gene therapy for hemophilia A that is in final stages of FDA review.

**Objective:** This study estimated the potential financial impact of gene therapy for hemophilia A to a not-for-profit health plan

**Methods:** A retrospective review of pharmacy and medical claims from July 1st 2018-June 30th 2020 was preformed to establish a total cost of care for an identified cohort of patients with hemophilia A. Available clinical information for each member of the cohort was reviewed to determine potential eligibility for gene therapy. Cost savings were calculated under the assumptions currently presented for Roctavian of a 3 year efficacy with a 96% reduction in bleeding events and factor utilization.

**Results:** Six of the twenty-nine patients identified as having hemophilia A were determined to be potential candidates for gene therapy. The six patients had a combined total cost of care related to hemophilia A of $4,471,065 per year. If these 6 patients were administered Roctavian, with a predicted efficacy leading to a 96% reduction in factor use and bleeds, we could estimate a decrease in cost of factors and related medical services by $2,146,111 over 3 years.

**Conclusions:** To be cost-effective in the identified cohort of six individuals with severe and symptomatic disease, Roctavian would need to be priced under $2,146,111.

**IMPACT OF PHARMACIST INVOLVEMENT DURING THE DISCHARGE MEDICATION PROCESS AT AN ACADEMIC MEDICAL CENTER**

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**Background**: Potentially avoidable medication errors are common during hospital discharge, with adverse drug effects (ADEs) occurring in 11-17% of patients during the first few weeks of hospital discharge. Uncoordinated hospital transitions have been attributed to 20-30% of hospital readmissions, with medication therapy management during transitions of care becoming increasingly recognized as affecting clinical outcomes, including the risk for readmission.

**Objective**: The objective of this study is to evaluate the clinical and financial impact of pharmacist intervention on identifying and correcting medication errors during the discharge medication reconciliation process as part of a new pharmacy-driven initiative. The primary endpoint is number and severity of errors identified during the discharge medication reconciliation. Secondary endpoints include 7-day and 30-day readmission rates, and cost avoidance.

**Methods**: This is a retrospective, single-center, pre-post observational-cohort-study that will assess the impact of this new pharmacy-driven initiative. Patients 18 years of age or older discharged from medicine teaching services between October 2020 and December 2020 will be included. Patients will have an admission medication history and reconciliation performed by the pharmacy department. A discharge medication reconciliation will then be performed by a pharmacist. Interventions pertaining to medication discrepancies and needed clarifications will be made prior to discharge. Interventions will be categorized and economic impact will be evaluated by further categorizing based on severity and likelihood of an ADE in the absence of intervention. Patients will be compared to a historical cohort who did not receive a pharmacist discharge medication reconciliation.

**Results:** To be determined

**Conclusions:** To be determined

EVALUATION OF A PHARMACIST-DRIVEN METHACILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) POLYMERASE CHAIN REACTION (PCR) NASAL SWAB ORDERING PROTOCOL IN PATIENTS WITH SUSPECTED PNEUMONIA

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**Background**: Empiric coverage for methicillin-resistant *Staphylococcus aureus* (MRSA) is often initiated and/or continued unnecessarily in patients with suspected pneumonia. The MRSA PCR nasal swab (MPNS) can be used to identify MRSA colonization and has a high negative predictive value for pneumonia. Studies have shown that de-escalation of empiric therapy based on MPNS results can decrease duration of therapy without significantly affecting clinical improvement or mortality. St. Peter’s Hospital has implemented a protocol allowing pharmacists to order an MPNS for patients receiving MRSA coverage for suspected pneumonia.

**Objective**: To evaluate the efficacy of the MPNS ordering protocol in reducing exposure to empiric MRSA therapy in patients with pneumonia.

**Methods**: This was an institutional-review-board-approved, two-phase, retrospective chart review of adult patients, admitted with suspected or confirmed pneumonia, and receiving either intravenous (IV) vancomycin or IV/oral linezolid. Patient records were reviewed for indication, days of therapy, and MPNS result. Phase I reviewed patients prior to protocol implementation. Following this review, education was disseminated to hospitalist providers on empiric MRSA coverage and on the utility of the MPNS. An identical review is currently being conducted to determine the effects of the MPNS ordering protocol.

**Results**: 267 patients were identified during Phase I, with an average of 2 days of therapy (± 1.5) per patient. 45.3% of patients had an MPNS ordered during their admission. Of the 106 patients with a negative MPNS, only 66% had therapy discontinued within 24 hours of swab collection. Phase II data is currently being reviewed for protocol effectiveness.

EFFECTIVENESS OF PHARMACIST-LED REMOTE PATIENT MONITORING IN THE MANAGEMENT OF UNCONTROLLED HYPERTENSION IN ADULT AMBULATORY CARE PATIENTS

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**Background**: Recent studies have demonstrated that remote blood pressure monitoring, which transmits patients’ real-time home blood pressure readings to clinicians, may be more effective in achieving blood pressure goals than no remote monitoring. The COVID-19 pandemic has hastened the need for healthcare providers to be capable of managing and treating patients remotely. This natural experiment aims to provide insight into the implementation of remote patient monitoring (RPM) services in ambulatory care practices and into the role that pharmacists may assume in remote management of uncontrolled hypertension.

**Objective**: The objective of this project is to determine the effect of a pharmacist-led RPM program on in-clinic systolic and diastolic blood pressure.

**Methods**: A natural cohort of 143 patients will be outreached and offered enrollment in pharmacist-led RPM services, based on maximum operational capacity at Mount Sinai primary care practices with pharmacist-led RPM available. Patients eligible for outreach are adult patients with diagnosed hypertension, have an average in-clinic blood pressure above 140/90 mmHg from 1/1/2020 through 10/1/2020, and are eligible for RPM through Medicare or Medicare Advantage coverage. Patients with history of heart transplant, heart failure, hemodialysis dependence, and current pregnancy will be excluded. Those that accept enrollment in RPM will be compared to those who decline RPM enrollment. Any patients referred for RPM in either group will be moved to a third observational cohort. The primary outcome is in-clinic systolic and diastolic blood pressure after three months from initial outreach, compared between groups. All patients outreached will be scheduled for a primary care physician visit after 3 months to measure in-clinic blood pressure, as is current practice. Patients enrolled in RPM services will receive remote blood pressure devices and monthly in-person or telehealth visits with a pharmacist. This project was reviewed and approved by the Quality Improvement Committee at Mount Sinai Health System.

**Results**: In progress

**Conclusions**: In progress

THE IMPLEMENTATION AND OUTCOMES OF AN OPIOID STEWARDSHIP PROGRAM IN A LONG-TERM CARE FACILITY

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**Purpose:** Inappropriate usage of opioids for chronic pain results in poor patient outcomes, suboptimal pain management, and opioid-related adverse effects. The purpose of this study is to design and implement an opioid stewardship program at a long-term care facility and to evaluate the outcomes of pharmacists’ interventions.

**Methods:** This is a single-centered, prospective, pre-and post- intervention, quality improvement, and medication use evaluation study including Rutland Nursing Home residents 18 years and older on one or more opioid medications. A multidisciplinary team including pain specialists, attending physicians, and pharmacists worked collaboratively to develop a protocol. Clinical pharmacists utilized the privileges of New York State’s Collaborative Drug Therapy Management capabilities to make interventions and lead the opioid stewardship program. Pre- and post-intervention metric outcomes including percentage of patients on chronic opioids, naloxone co-prescription, bowel regimen co-prescription, average pain scale utilizing the Numerical Rating Scale and Wong-Baker FACES Scale, average morphine milligram equivalent (MME), and compliance with pain management consults were assessed.

**Results**: Pending

**Conclusion**: Pending

NATIONWIDE CROSS-SECTIONAL SURVEY ON BETA-LACTAM THERAPEUTIC DRUG MONITORING AND BARRIERS TO IMPLEMENTATION

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**Background:** Clinicians and guidelines worldwide are recognizing the need for beta-lactam therapeutic drug monitoring (TDM), but there is a lack of published data assessing the prevalence and barriers to beta-lactam TDM implementation in the United States.

**Objective:** This survey sought to estimate the prevalence, describe the practices and identify actual and perceived barriers to implementation of beta-lactam TDM in American hospitals.

**Methods:** This study is a multicenter, cross-sectional survey of hospitals with a postgraduate year two (PGY2) infectious diseases (ID) pharmacy residency program. A 41-item electronic survey was developed by three study investigators and validated by two pharmacy residency directors and two ID pharmacists. The survey was sent electronically to all PGY2 ID residency directors listed on the American Society of Health-Systems Pharmacists website. Weekly reminder emails will continue to be sent over a five-week period. This project was granted an exemption from review by the Institutional Review Board.

**Results:** The survey was sent to the residency director of 129 PGY2 ID pharmacy residencies and preliminary results indicate a response rate of 22.4% (29/129) to date. 10.3% (3/29) of the respondents stated their institution had an established beta-lactam TDM program.

**Conclusions:** Full results and conclusion on final data analysis will be presented at the Residency Research Practice Forum.

EVALUATION OF POTASSIUM SUPPLEMENTATION IN PEDIATRIC PATIENTS AT NYU LANGONE HEALTH SYSTEM

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**Background**: There is a paucity of data on the direct correlation of pediatric parenteral potassium supplementation to change in serum potassium levels. Potassium handling is postulated to differ based on age due to differences in degree of kidney development and maturation of function. NYULH currently uses intravenous potassium supplementation doses of 0.5 mEq/kg to 1 mEq/kg depending on degree of hypokalemia. A paucity of data exists in the pediatric literature with regards to the effectiveness of intravenous potassium supplementation and whether co-existing medical problems or concomitant medications effect outcomes.

**Objective**: The primary outcome was to evaluate the effect of parenteral potassium supplementation on serum potassium levels in a non-cardiac pediatric population at NYULH. The secondary outcomes were to identify variables that may influence potassium supplementation and to assess the incidence of hyperkalemia with our hospital’s current supplementation practices.

**Methods**: This was a retrospective, single-center, institutional review board-approved chart review of parenteral KCL supplementation. .

**Results**: 160 administrations were included in the 1 mEq/kg group and 105 administrations in the 0.5 mEq/kg group. The average change in serum potassium was 0.6 mEq/L. There was a change in potassium of 0.8 mEq/L in the 1 mEq/kg group and the 0.5 mEq/L in the 0.5 mEq/kg group.

**Conclusions**: Potassium doses of 1 mEq/kg correlated to a median serum potassium increase of 0.8 mEq/L whereas doses of 0.5 mEq/kg correlated to a median serum potassium increase of 0.5 mEq/L.

EFFICACY AND SAFETY OF HEPATITIS C VIRUS DIRECT ACTING ANTIVIRALS IN PATIENTS WITH ONCOLOGIC MORBIDITIES ON IMMUNOSUPPRESSIVE THERAPY

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**Background**: Third-generation direct acting antivirals (DAAs) developed in 2014 for the treatment of chronic hepatitis C virus (HCV) are known to be generally well tolerated. After 8-12 weeks of treatment, 95% of patients are cured with sustained virologic response (SVR). Although current HCV guidelines provide recommendations for special populations like human immunodeficiency virus (HIV) and organ transplant patients, the guidelines do not specify treatment for patients who are being concurrently treated with chemotherapy. While believed to be effective, there is limited data evaluating the use of concomitant immunosuppressive chemotherapy and HCV DAAs on achieving SVR, safety and tolerability.

**Objective**: The primary outcome is attainment of SVR. Secondary outcomes include mortality, presence of drug-drug interactions, adverse reactions reported, discontinuation of therapy, and differences in SVR between solid and liquid cancers.

**Methods**: This is an institutional review board approved, retrospective, single-center, chart review from October 1, 2014 through August 31, 2020. Patients with chronic HCV and cancer being treated with chemotherapy will be compared against patients who have chronic HCV without cancer. Patients were included if they were 18 years old, had a diagnosis of chronic HCV and received a DAA for treatment. Patient will be excluded if they are pregnant, taking immunosuppressive agents for any indication other than cancer or if there is missing data to confirm SVR.

**Results**: In progress

**Conclusions**: In progress

COMPLIANCE WITH A HEALTH-SYSTEM BASED ANTICOAGULATION REVERSAL PROTOCOL

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**Background**: Major bleeding due to the use of anticoagulants can lead to increased patient morbidity and mortality. A variety of anticoagulation reversal options for direct oral anticoagulants and warfarin are available. However, these agents are high in cost and come with their own risks, such as thrombosis. The Catholic Health System implemented an anticoagulation reversal protocol in November 2019 to ensure the proper use of prothrombin complex concentrate (PCC), idarucizumab, and coagulation factor Xa.

**Objective**: The primary objective was to evaluate compliance with the institution’s anticoagulation reversal protocol and to evaluate reversal use in the health-system. The secondary objective was to evaluate the pharmacist’s role in facilitating appropriate anticoagulant reversal use. Patients were excluded if they were not taking an anticoagulant or if they did not receive a reversal agent.

**Methods**: This was a retrospective, multicenter, medication use evaluation. Data collected included anticoagulant name, dose, frequency, indication, time since last dose, and reversal agent name and dose. Patients were evaluated for presence of major bleeding, administration of fresh frozen plasma (FFP), and pharmacist interventions.

**Results**: There were 33 patients included. Nine (27.3%) reversal orders were non-compliant with the protocol. Two patients without major bleeding received reversal and eight received both FFP and PCC. Pharmacist interventions were entered on 17 (51.5%) reversal orders. Eight of the non-compliant orders did not have pharmacist interventions documented.

**Conclusions**:Out of the nine non-compliant reversal orders, eight of these did not have any pharmacist involvement documented.This demonstrated pharmacist involvement in appropriate anticoagulation reversal.

EFFICACY AND SAFETY OF ACETAZOLAMIDE IN TREATING HYPOCHLOREMIC METABOLIC ALKALOSIS FROM DIURETIC USE IN PEDIATRIC PATIENTS

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**Background**: Loop and thiazide diuretics can cause hypochloremic metabolic alkalosis by promoting bicarbonate retention and acid secretion.

**Objective**: Primary objective of this quality improvement study is to evaluate acetazolamide’s role in reducing pH by 0.05 and serum bicarbonate levels by 2.5 to 5 mmol/liter. Secondary outcomes include changes in respiratory status and effect of chloride supplementation on resolution of the alkalosis.

**Methods**: An EPIC report spanning one year was carried out at three NYU Hospital campuses to identify patients less than 18 years of age who received acetazolamide. Inclusion criteria were alkalosis, defined as a pH greater than 7.45 and/or serum bicarbonate greater than 30 millimole/liter. Laboratory parameters were examined before and after acetazolamide. Respiratory status was measured by changes in oxygen delivery and requirements.

**Results**: 20 patients were screened. 13 met the inclusion criteria. Mean acetazolamide dose was 5.04 mg/kg, with a range of one dose to three doses per day, for a duration of one to three days. Mean reduction in pH after acetazolamide was 0.0522 and mean reduction in serum bicarbonate was 5.82 mmol/L. FiO2 requirements decreased by 3.39% and SpO2 increased by 0.856. Chloride supplementation resulted in a lower reduction in serum bicarbonate. In patients who did not received chloride, FiO2 were reduced by 10.25%.

**Conclusion**: Acetazolamide was effective in treating hypochloremic metabolic alkalosis with reductions in pH and serum bicarbonate exceeding our predicted values. Improvements in respiratory status and greater reduction in serum bicarbonate occurred in patients who did not receive chloride supplementation.

OPTIMIZATION OF MEDICATION ALERTS TO REDUCE ALERT BURDEN AT A LARGE ACADEMIC MEDICAL CENTER

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**Background:**

Alert fatigue is a significant healthcare challenge, often causing providers to overlook relevant warnings. At our institution, excessive alerts were hindering clinicians from responding to meaningful alerts, prompting a quality improvement initiative to reduce the overall alert burden. Our initiative aims to optimize medication alerts, reduce medication alert overrides, and improve clinician sensitization to meaningful alerts.

**Objective:**

The primary aim is to reduce the medication override rate by 10% by June 2021. The secondary aim includes measuring clinician response to the alerts, specifically analyzing the number of alerts that were acted upon.

**Methods:**

This prospective analysis will be conducted between July 2020 and June 2021. All medication alerts that trigger for prescribers in both inpatient and outpatient settings will be included in our analysis. Data collected consists of the total number of medication alerts from the electronic health record (EHR), including the number of alerts for each medication alert type and the number of alerts that are either overridden, removed, viewed, or held by clinicians.

An interdisciplinary group reviewed the alert override data, and selected duplicate therapy alerts as the first medication alert type for optimization. After completing a risk versus benefit analysis, the number of duplicate orders allowed for individual medication classes will be modified and implemented into our EHR. Data will be extracted to measure the effect of the change on the override rate and clinician response rate.

**Results:** In progress

**Conclusions:** In progress

EFFICACY AND SAFETY OF DIRECT ORAL ANTICOAGULANTS IN EXTREMES OF WEIGHT

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**Background:** Oral anticoagulants provide a non-invasive route of administration for venous thromboembolism (VTE) and nonvalvular atrial fibrillation (AF). Obese or underweight patients on a direct oral anticoagulant (DOAC) or warfarin may have increased risk for VTE or bleeding.

**Objective:** The primary outcome included incidence of VTE or bleeding in obese and underweight patients treated with a DOAC (apixaban, rivaroxaban, and dabigatran) or warfarin. Secondary outcomes were efficacy and safety of oral anticoagulants among four groups. Patients were included if their body mass index was below 18.5 kg/m2 or above 30 kg/m2, and if they had a history of either VTE or AF.

**Methods**: This was a single-centered, retrospective chart review evaluating efficacy and safety of oral warfarin or a DOAC in patients with extremes of weight between October 2016 to September 2020. This study met IRB exemption.

**Results**: 244 patients received a DOAC and 248 patients received warfarin. There were no statistically significant differences in the rate of VTE between two groups (6.97% vs. 4.03%, p=0.15), or in the rate of bleeding events (24.6% vs. 20.9%, p=0.32). There was a statistically significant difference in the rate of VTE between four groups (warfarin = 4.03%; apixaban = 1.98%; rivaroxaban = 11%; dabigatran = 9.3%, p = 0.0149), and in the rate of bleeding (warfarin = 24.6%; apixaban = 11.88%; rivaroxaban = 25%; dabigatran = 32.56%, p = 0.0194).

**Conclusion**: Apixaban may be a safer oral anticoagulant in patients who are obese or underweight, compared to rivaroxaban, dabigatran, and warfarin.

A SINGLE CENTER SURVEY OF PHARMACIST LED EDUCATION ON HEMATOLOGY AND ONCOLOGY TREATMENTS IN A GROUP SETTING

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**Background:** Oncology medication regimens are increasingly more complicated. As additional regimens are introduced, the role of the pharmacist as an educator has increased in importance. Research regarding education on hematology and oncology treatments provided by pharmacists is scarce despite the frequent provision of this service.

**Objective:** This study evaluated the benefits of a pharmacist led education class using a survey tailored for patients undergoing hematology and oncology treatments.

**Methods:** A Likert scale survey instrument with 14 questions and 2 open-ended questions was given to patients starting intravenous oncology/hematology treatment after completing the pharmacist led education class.

**Results:** Thirty-five patients were screened and thirty-three completed the survey. In questions regarding pharmacist involvement, 82.75% of patients *strongly agreed* that the pharmacist provided them with information to help them understand their medications, was approachable and professional, answered their questions and their care had been improved after attending the class. The percentage of patients surveyed that *agreed* with the statements above was 15.38% and 1.5% of patients chose not to respond. In questions regarding medication toxicity, 76% of patients *strongly agreed* that the pharmacist provided them with information about potential toxicities, managing side effects, and the appropriate people to contact if they have questions. Of the patients surveyed, 17.4% *agreed* with the statements above and 6.6% of patients chose not to respond. Responses to open-ended questions were positive.

**Conclusions:** The responses to the survey indicate patients benefited from a pharmacist led education class regarding intravenous oncology/hematology treatments.

IMPACT OF AN INTEGRATED SPECIALTY PHARMACY CARE MODEL IN EPILEPSY PATIENTS

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**Background:** Anti- epileptic drugs (AEDs) are the primary prevention method for epilepsy, making adherence important in order to control seizures. The proper use of AEDs can reduce seizure frequency in approximately 67% of patients with epilepsy. Non-adherence is associated with poor outcomes for many disease states. The specialty pharmacy program currently provides patient management services for various specialty disease states, not including epilepsy.

**Objectives:** The primary outcome is adherence measured by proportion of days covered (PDC) after implementation of the pilot. PDC will be compared to a historical cohort of patients with epilepsy prescription fills over the previous 12 month period. Secondary descriptive outcomes include patient reported adherence, anti-epileptic regimen, pharmacist interventions, patient perceived benefit of therapy, and hospitalizations.

**Methods:** This is amulti-arm pre-post study. The pilot program will include patients discharged from the Epilepsy Monitoring Unit (EMU) with prescriptions sent to the hospital-based specialty pharmacy.

The patients will receive a comprehensive assessment from a pharmacist. During the assessments, the pharmacist will review: barriers to care, potential adverse events, changes to the patients’ medication list, progress towards therapeutic goals, and key education points.

**Results:** There were 288 patients included in the historical cohort with a PDC rate of 59.4%. These results will be compared to the PDC of the prospective pilot cohort using the Mann Whitney U Test.

**Conclusion:** The preliminary results of this pilot study will be used to determine the impact of implementing a patient management program focused on epilepsy.

COPD OUTREACH PROGRAM DURING NATIONAL COVID-19 PANDEMIC

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**Background**

The Chronic Obstructive Pulmonary Disease (COPD) GOLD guidelines states that patients with COPD are recommended to be on guideline directed therapy and maintain this therapy during the pandemic. Previous studies have found that pharmacists can help adherence rates of COPD medications and help reduce hospitalizations for COPD. However it is not known if this translates into a post COVID era. During the pandemic, in-person patient visits have decreased and the clinics are providing more telehealth services. Unfortunately, this provides a challenge for interdisciplinary care making it logistically difficult for pharmacists to continue in-person interventions. In response, a COPD outreach program was created to help educate, counsel, and evaluate patients’ current COPD therapy.

**Objective**

The primary outcome was the percentage of medication related problems addressed by the pharmacist. Patients were excluded if they were hospitalized or if unable to contact after 4 attempts.

**Methods**

This was a retrospective, multicenter, observational study to assess the pharmacists’ impact through the COPD outreach program.

**Results**

A total of 192 patients were contacted for the outreach program and 139 COPD outreach calls were completed. At baseline, a total of 28% of patients were on triple inhaled therapy and 19% were on no maintenance therapy. The pharmacy team identified 81 medication-related problems and made 96 interventions. Of these interventions, 41 were medication therapy adjustment recommendations made to the provider, with an acceptance rate of 83%.

**Conclusions**

A pharmacist ran COPD outreach program allowed for pharmacists to address medication related problems through a telemedicine service.

COMPLIANCE WITH A VENOUS THROMBOEMBOLISM SCREENING TOOL IN THE PEDIATRIC POPULATION

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**Background:** Traditionally, children are thought to have low-risk for development of venous thromboembolism (VTE) with a rate of 0.07-0.14 per 10,000 children. However, in hospitalized children, the rate is increased to greater than 58 per 10,000 admissions. Timely diagnosis, treatment, and optimal prophylaxis for VTE in children are important to avoid associated long-term complications such as prolonged hospitalization and post-thrombotic syndrome. Risk factors for the development of VTE in pediatric patients include but are not limited to: mobility status, obesity, chronic medical conditions such as ulcerative colitis, and presence of central lines. As the initial step to standardize VTE prophylaxis across the pediatric units, a risk factor screening tool was created and implemented in the pediatric intensive care unit (PICU). The goal of this study is to assess physician compliance with the screening tool and evaluate the efficacy and safety of the prophylaxis measures.

**Objective:** The primary outcome is rate of compliance with the screening tool in a pediatric population greater than 12 years old. Secondary outcomes include incidence of prophylaxis-related adverse events and rates of VTE.

**Methods:** This is a single-center chart-review to assess the newly implemented VTE screening tool in the PICU at Mount Sinai Hospital. Patients ages 12 and older admitted to the PICU after December 1, 2020 were identified. Data to be collected include demographics, VTE risk screening status and category, use of prophylaxis, enoxaparin dosing if applicable, bleeding events, and development of VTE or other adverse effects.

**Results**: Pending Institutional Review Board approval.

**Conclusions:** Pending.

EFFECT OF INTRAVENOUS VITAMIN C WITH OR WITHOUT HYDROCORTISONE AND THIAMINE ON OUTCOMES AMONG CRITICALLY ILL PATIENTS WITH COVID-19

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**Background**

Coronavirus Disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may result in severe complications including septic shock and acute respiratory distress syndrome (ARDS). Complications of COVID-19 are linked to an inflammatory response triggered by SARS-CoV-2 infection. Vitamin C, an antioxidant with anti-inflammatory properties, may be beneficial in COVID-19 treatment. Use of IV vitamin C, in combination with hydrocortisone and thiamine in severe sepsis and septic shock may improve end organ function and reduce mortality.Administration of IV vitamin C to patients with ARDS may reduce mortality, ventilator and intensive care unit (ICU) days. Benefits of IV vitamin C in COVID-19 is currently unknown. This study evaluates IV vitamin C to treat COVID-19 complicated by septic shock.

**Objective**

Evaluate whether IV vitamin C with or without thiamine and hydrocortisone, compared to standard of care, reduces morbidity and mortality in critically ill patients admitted to the ICU with septic shock and COVID-19.

**Methods**

This is a single-center, retrospective chart review conducted at Mount Sinai Beth Israel from March 1st, 2020 to August 30th, 2020. The primary outcome is the percentage of expired patients within 28 days of treatment with IV vitamin C versus standard of care. Secondary outcomes include vasopressor duration, ICU and hospital length of stay (LOS), change in Sequential Organ Failure Assessment (SOFA) score and PaO2/FiO2 ratio. This study was approved by the Mount Sinai COVID-19 Protocol Review Committee and is under review by the institutional review board.

**Results:** In progress.

**Conclusions:** In progress.

IMPACT OF INFECTIOUS DISEASES PHARMACIST ON LENGTH OF STAY AND READMISSION FOR PATIENTS REQUIRING LONG-TERM ANTIBIOTICS

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**Background:** Outpatient parenteral antimicrobial therapy (OPAT) allows for the treatment of serious infections with intravenous (IV) antibiotics in the outpatient setting. Infectious disease (ID) practitioner review reduces hospital length of stay (LOS) and prevents readmission. Pharmacist-involvement on an OPAT team has been proven to result in more narrow spectrum antimicrobial use and IV to oral (PO) conversions, while not delaying discharge.

**Objective**: To determine the impact of a pharmacist participation on an interdisciplinary OPAT team on LOS and readmission.

**Methods:** IRB granted exempt status for this single-center, retrospective, pre-intervention study. Data was obtained via Antibiotic Plan and Follow-up report. Patients >18 years who were discharged on at least 1 week of antibiotics were included. Data collected included demographics, diagnosis, severity-of-illness score, antimicrobial selection and outcomes both prior to and during pharmacist’s intervention. The primary outcome was LOS. Secondary outcomes were 30-day all-cause and infection-related readmission.

**Results:** A total of 86 and 55 patients were included in the pre and intervention periods. Median LOS was 7 days in both the pre and intervention groups. 30-day readmission occurred in 23% and 18% in the pre and intervention groups. Infection-related 30-day readmission occurred in 9% and 11% in the pre and intervention groups. Avoidance of IV therapy at discharge occurred in 14% of patients in both groups. The most frequent infection-related readmission reasons were lack of source control and sepsis secondary to an unrelated infection for both groups.

**Conclusions:** The addition of a pharmacist to an interdisciplinary OPAT team led to a trend toward decreased readmission.

ASSESSMENT OF PRESCRIBING ADHERENCE IN ACCORDANCE WITH AN ACUTE CARE HOSPITAL SYSTEM’S ANTIMICROBIAL GUIDE

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**Purpose:** In the Catholic Health System (CHS), an antimicrobial guideline has been published for use in its five acute-care sites, however prescribing adherence has never been assessed. This study aimed to improve prescribing habits and lessen the occurrence of adverse events and the development of bacterial resistance.

**Objective:** The primary objective of this study was to see an improvement of prescriber compliance to the antimicrobial guideline following pharmacy driven education for the empiric therapy of skin/skin structure, urinary tract, and respiratory infections. Secondary objectives included the assessment of antibiotic allergies, appropriateness of empiric therapy based on allergy history, and percentage of cultures being taken and their activity in-vitro to the empiric therapy.

**Methods:** This was a retrospective, pre-post interventional study to assess prescriber compliance to the newly updated CHS antimicrobial initiative within a single hospitalist group at Mercy Hospital. Inclusion criteria encompassed adults who received an antibiotic empirically for skin/skin structure, urinary tract, or respiratory infection.

**Results:** There were 56 patients included in pre-intervention group and 53 patients in the post-intervention group. There was not a statistically significant increase in the prescriber adherence to the antimicrobial guide (60.7% to 64.2%, p = 0.863126). There was a statistically significant increase in reported undocumented antibiotic allergies (22.2% to 50%, p=0.0416) and reduction in documented moderate/minor reactions (58.3% to 25% p=0.0251).

**Conclusion**: The implementation of a pharmacy-driven antimicrobial stewardship education initiative can lead to increased compliance to an acute care system’s antimicrobial guide potentially leading to reductions in bacterial resistance rates, drug costs and adverse drug reactions.

EMPIRIC DOSE-ADJUSTED ENOXAPARIN AND ANTI-XA MONITORING IN OLDER HOSPITALIZED ADULTS, A QUALITY ASSURANCE REVIEW

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**Background:** At Upstate University Hospital’s Community Campus, therapeutic enoxaparin doses are adjusted by pharmacists per interchange procedure: 1 mg/kg every 12 hours is adjusted to 0.75 mg/kg every 12 hours in patients aged ≥75 years with CrCl >30 mL/min. While this dose reduction suggested to treat ST-elevation myocardial infarctions, use for other therapeutic indications is lacking. In Leri’s study, older adults received enoxaparin standard (mean: 0.84 mg/kg) vs. adjusted body weight (mean: 0.96 mg/kg) dose. The standard dosing group had a greater mean and incidence of supratherapeutic anti-Xa levels (1.28 IU/ml vs. 0.98 IU/ml, P = 0.001; 28% vs. 0% >1.5 IU/mL, P = 0.001).

**Objective:** Confirm the efficacy of our interchange procedure

**Methods:** This IRB-exempted retrospective chart review includes patients aged ≥75 years with CrCl >30 mL/min from July 2020 to February 2021 who received therapeutic enoxaparin 0.75 mg/kg every 12 hours with ≥1 anti-Xa level. The primary endpoint is the incidence of therapeutic (0.5 to 1.0 IU/mL), subtherapeutic, and supratherapeutic peak anti-Xa levels 4 to 6 hours after the third dose. Secondary endpoints include in-hospital mortality, bleeding, thrombosis, number of dosage adjustments to therapeutic anti-Xa levels, and dosage at which therapeutic anti-Xa levels are achieved. Baseline demographics and clinical characteristics will be described as mean ± standard deviation or median (interquartile range) for continuous variables, and frequencies for categorical variables.

**Results:** In the interim analysis, out of 20 patients included, 14, 3, and 3 patients had therapeutic, subtherapeutic, and supratherapeutic initial anti-Xa levels, respectively.

**Conclusion:** In progress

ASSESSMENT OF INSULIN INFUSION REQUIREMENTS IN CORONAVIRUS DISEASE 2019 (COVID-19)-INFECTED PATIENTS WITH DIABETIC KETOACIDOSIS

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**Background:** In March of 2020, coronavirus disease 2019 (COVID-19) was declared a global pandemic. To date, more than 28 million cases have been reported in the United States. In COVID-19-infected patients, diabetes has been shown to worsen the prognosis of infection. Additionally, COVID-19 is thought to induce diabetic ketoacidosis (DKA) by impairing insulin secretion. Literature regarding insulin infusion requirements in COVID-19-infected patients with DKA is limited.

**Objective:** The purpose of this study was to compare the cumulative insulin dose required to achieve resolution of DKA in the intensive care unit (ICU) in COVID-19 vs. non-COVID-19 patients with type 2 diabetes mellitus (T2DM).

**Methods:** The Institutional Review Board deemed this retrospective cohort study exempt. Cohort 1 included patients with a diagnosis of COVID-19 while cohort 2 included patients without COVID-19. Patients were included if they had a history of or new-onset T2DM and were being treated with a continuous insulin infusion for DKA in an ICU setting. Data collected included patient demographics, baseline DKA labs, concomitant hyperglycemic-causing medications, insulin infusion duration, cumulative insulin dose, average insulin infusion rate, total and ICU length of stay, and mortality. The primary outcome was to compare the cumulative insulin dose required to achieve resolution of DKA in each cohort. The secondary outcomes included the time to achieve resolution of DKA as well as the average insulin infusion rate, weight-based insulin infusion rate, and average weight-based insulin infusion rate required to achieve resolution of DKA.

**Results:** Pending.

**Conclusions:** Pending.

LIDOCAINE FOR NEUROBLASTOMA PAIN? A MULTICENTER RETROSPECTIVE OBSERVATIONAL COHORT STUDY

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**Background**: Dinutuximab, previously known as anti-GD2 ch14.18, is an immune-mediated therapy used in the treatment of high-risk (HR) neuroblastoma (NBL). Dinutuximab targets the protein GD2 which is present on neuroblastoma cells as well as neurons and peripheral nerve fibers. Off target effects of dinutuximab on the neurons and peripheral nerve fibers cause many patients to experience severe nerve pain. Significant modifications of pain treatment are typically required during their first treatment course. Historically, the standard of care for pain control in these patients has been high-dose opioids. Our institution has utilized a combination of intravenous lidocaine infusions and morphine for the primary treatment of dinutuximab associated neuropathic pain.

**Objective:** We look to compare the safety and efficacy of intravenous lidocaine infusions as compared to other pain control regimens, including high-dose morphine alone, hydromorphone and morphine and dexmedetomidine.

**Methods**: A retrospective, multi-centered, electronic chart review was performed at four tertiary academic medical centers. This project was granted an exemption by our Institutional Review Board (IRB). Patients between 0-18 years of age who received lidocaine infusions during their first course of dinutuximab were included in the study to evaluate the primary outcome of adjuvant morphine equivalents needed. Data will be presented using descriptive and inferential statistics.

**Results**: Results will be submitted within final slides.

**Conclusions**: Conclusion will be submitted within final slides.

RISK FACTORS FOR TACHYARRHYTHMIA DEVELOPMENT IN PATIENTS WITH HFREF & CARDIOGENIC SHOCK

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**Background**: Heart failure with a reduced ejection fraction (HFrEF), typically defined as a left ventricular ejection fraction (EF) of less than 40%, is a complex clinical syndrome involving structural or functional impairment of ventricular filling. The number one cause of HFrEF is due to metabolic abnormalities and ischemia secondary to acute coronary syndromes. Acute decompensation can be life threatening and result in a severe form of heart failure, cardiogenic shock (CS). The Sepsis Occurrence in Acutely Ill Patients (SOAP) II Trial preformed an adverse events sub- group analysis revealed that CS patients who developed arrhythmias had an increased rate of mortality when receiving dopamine.

**Objective**: We aim to determine different risk factors for development of tachyarrhythmias in patients with cardiogenic shock.

**Methods**: This was a retrospective, chart review at Buffalo General Medical Center recruiting patients from January 2015 to August 2020 utilizing ICD-10 codes to flag patients for eligibility. Adults with a history of HFrEF admitted to an ICU service with a diagnosis of CS who received dopamine or norepinephrine for pressure support were included. Patients were excluded if they received a combination of dopamine and norepinephrine or had positive blood cultures within 72 hours of vasopressor initation.

**Results**: In Progress

**Conclusions**: In Progress

ASSESSMENT OF ANTIBIOTIC DURATION THROUGH TRANSITION OF CARE FROM HOSPITALIZATION TO OUTPATIENT

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**Background:** Common bacterial infections, including urinary tract infections, pneumonia, and skin and soft tissue infections, may require hospitalization for initial treatment with transition to oral antibiotics post discharge. Antimicrobial stewardship programs have improved antibiotic selection, however appropriateness of duration requires additional evaluation. Evidence-based recommended durations of antibiotic treatment are based upon type of infection, source control, and antibiotic selection. Inappropriate treatment duration may result in treatment failure, adverse events, and/or increased healthcare costs. This study was designed to assess the appropriateness of antimicrobial durations prescribed at discharge in a rural, community hospital.

**Objective:** To assess the appropriateness of antibiotic duration prescribed throughout transition from inpatient to outpatient treatment per Infectious Diseases Society of America (IDSA) Guidelines.

**Methods:** A retrospective chart review was performed to identify patients’ admitted inpatient for treatment of a urinary tract infection, pneumonia, or skin and soft tissue infection and were discharged with orders for outpatient, oral antibiotics to complete treatment. Appropriate antibiotic duration was assessed with day one of treatment considered the first day of appropriate antibiotic therapy. Data was analyzed for significance using a chi squared statistical test for each disease state. Clinical data was retrieved with the approval of the Institutional Review Board.

**Results**:

*In progress*

**Conclusions**:

*In progress*

SECONDARY SUPERIMPOSED BACTERIAL INFECTIONS IN SARS-COV-2 PATIENTS: ARE WE MISSING THE BUG?

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**Background**: Many SARS-CoV-2 positive-associated respiratory illnesses are treated with antibiotics due to the unknown incidence of bacterial co-infection and conventional empiric inpatient management. To date, there is sparse information on secondary bacterial infections in this patient population.

**Objective:** The primary objective of this study was to analyze patient clinical characteristics and objective laboratory data of secondary bacterial respiratory tract infections in confirmed SARS-CoV-2 inpatients.

**Methods**: This was a multi-centered, retrospective, observational study performed at the Catholic Health System. Data including demographics, comorbidities, basic metabolic panel, blood counts, microbiologic results, symptomology, and medications utilized was collected through manual chart review in the electronic medical record. Logistic regression was applied to determine factors associated with patients with positive bacterial cultures.

**Results**: Of the 185 participants included in this study, 20% of patients had a positive bacterial respiratory culture, whereas 8% had a positive bacterial blood culture. *Methicillin resistant staphylococcus aureus* and *methicillin susceptible staphylococcus aureus* were among the most common pathogens in respiratory cultures, representing 21% each. The most common antibiotics used to treat inpatients were cephalosporin (35%) and macrolide (29%) antibiotics. Length of stay >14 days, intubation, and ventilator days >10 days were noted risks.

**Conclusions**:These results confirm the continued concern of secondary bacterial co-infections in hospitalized patients with SARS-CoV-2. Several factors such as hospital duration, intubation, and ventilation duration were associated with co-infection. This cohort sampling may suggest additional consideration for expanded empiric approaches that include respiratory MRSA pathogens. Further evidence would enhance rationale for empiric antibacterial therapy.

UTILIZING VANCOMYCIN AREA UNDER THE CURVE DOSING IN PATIENTS WITH METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* BACTEREMIA

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**Background**

Current IDSA guidelines recommend dosing vancomycin utilizing an area under the concentration-time curve to MIC (AUC/MIC) strategy with a target AUC/MIC ratio of 400 to 600. This strategy has been shown to increase treatment success and reduce vancomycin induced nephrotoxicity. Our hospital currently utilizes a trough-based strategy when dosing vancomycin. This study was done to implement a vancomycin AUC/MIC based dosing strategy and determine the clinical impact of this strategy at our institution.

**Objectives**

The purpose of this study was to evaluate a vancomycin AUC/MIC based dosing strategy in patients with methicillin resistant *Staphylococcus aureus* (MRSA) bacteremia and evaluate the incidence of nephrotoxicity compared to patients who received vancomycin via a trough-based dosing strategy.

**Methods**

This study is a prospective, historical case control study. This study was approved by the institutional review board from the Feinstein Institute for Medical Research. Patients with MRSA bacteremia had their vancomycin dosed via an AUC/MIC strategy and were compared to patients receiving vancomycin dosed via a trough strategy. Baseline characteristics to be collected include age, gender, weight, ethnicity, serum creatinine, Pitt bacteremia score, source of MRSA bacteremia, any antibiotic in 72 hours preceding vancomycin, any other antibiotics in addition to vancomycin, and any drugs affecting kidney function within 48 hours of vancomycin. The primary outcome of this study is the incidence of acute kidney injury. The secondary outcomes of this study are severity of acute kidney injury, time to blood culture clearance, and vancomycin trough levels.

**Results**

Research is currently in progress and results are pending.

IMPACT OF *STREPTOCOCCUS PNEUMONIAE* URINARY ANTIGEN TESTING (PUAT) IN PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA (CAP) ADMITTED WITHIN A LARGE ACADEMIC MEDICAL SYSTEM

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**Background:** PUAT is a non-invasive assay that can be utilized to aid in the diagnosis of CAP secondary to *S*. *pneumoniae* infection. Evidence may support PUAT as an effective antimicrobial stewardship tool to curtail the use of broad-spectrum antimicrobials. At NYULH, our CAP guidelines and order set were developed to standardize diagnostic testing, which includes PUAT.

**Objective:** Compare antimicrobial use, de-escalation rates and outcomes among patients with positive and negative PUAT.

**Methods:** This was a retrospective, Institutional Review Board approved, chart review of adults admitted to NYULH System between January-December 2019 with a primary admitting diagnosis of PNA where PUAT was performed.

**Results:** We evaluated 910 patients, of which 121 (13.3%) were PUAT positive. No difference in baseline characteristics, including severity of illness as represented by the Pneumonia Severity Index and Charlson Comorbidity Index, were observed between PUAT positive and negative groups. Initial de-escalation, defined as discontinuation of atypical, pseudomonal, and methicillin-resistant *Staphylococcus aureus* coverage, occurred in 97/117 (82.9%) and 629/775 (81.2%) of PUAT positive and negative patients, respectively (p = 0.749). Median time to de-escalation was shorter in the PUAT positive cohort 1 (IQR 0-2) vs 1 (IQR 1-2) day, p = 0.01). Among the PUAT positive group, hospital length of stay was shorter in patients who were de-escalated (6 vs 7 days in patients who were not de-escalated or required escalation, p=0.0005) with no difference in the incidence of *C. difficile* infection, in-hospital mortality, or 30-day infection-related readmission.

**Conclusions:** PUAT positivity resulted in earlier de-escalation of antimicrobials without negatively impacting patient outcomes.

IMPACT OF PHARMACIST EDUCATION ON DURATION OF PHARYNGITIS TREATMENT IN THE EMERGENCY DEPARTMENT

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**Background**: Pharyngitis is a very common diagnosis in the emergency department (ED) at Niagara Falls Memorial Medical Center (NFMMC). Guidelines and studies show in adults and children without any allergies, oral penicillin or amoxicillin for 10 days is first-line treatment compared to 5 or 7-day treatment. Proper duration of antibiotics is crucial to eradicate Group A Streptococcus. Prescribing patterns for pharyngitis treatment have not been formally assessed in the ED at NFMMC. The purpose of this study is to determine the effect of prescriber education on the correct duration of therapy in pharyngitis patients.

**Objective**: The primary outcome was the change in the percentage of patients discharged with guideline recommended duration of antibiotic therapy diagnosed with pharyngitis in the emergency department after pharmacist driven provider education. Secondary outcomes included guideline recommended first-line antibiotics prescribed with and without a beta-lactam allergy.

**Methods**: This study assessed all patients diagnosed with pharyngitis in the ED at NFMMC treated with antibiotics. Retrospective pre-education chart review was conducted from 11/01/2019-02/28/2020 and the prospective post-education chart review was conducted from 11/01/2020-02/28/2021.

**Results**: 72.1% of 43 patients in prospective chart review met the primary outcome compared to 72.5% of 113 patients in retrospective chart review (p=1.000). Similar results were found in both secondary outcomes with non-statistically significant data (p=0.8491, p=0.2919).

**Conclusions**: Pharmacist driven education did not lead to a measurable difference in antibiotic duration prescribing, and additional strategies may be necessary to improve adherence to guideline-recommended durations of therapy.

Impact of Pharmacist Education on the Appropriate Treatment of Community Acquired Pneumonia in the Inpatient Setting

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**Background**: In 2019, the Infectious Diseases Society of America (IDSA) and the American Thoracic Society updated their guidelines for the treatment of adults with community acquired pneumonia (CAP). There are several new recommendations for topics that had not been previously covered in the 2007 guidelines. The updated guidelines recommend abandoning the term healthcare associated pneumonia (HCAP). The new guideline modified risk factors for prescribing empiric broad spectrum antibiotics to include only severe CAP or patients previously colonized with *Pseudomonas* or methicillin resistant *Staphylococcus aureus* (MRSA).

**Objective**: The primary outcome was to assess the effectiveness of pharmacist education on provider adherence to the 2019 IDSA guidelines for treatment of non-critical care inpatients diagnosed with CAP.

**Methods**: This study was a retrospective, single center, chart review at Millard Fillmore Suburban Hospital. Adherence of empiric antibiotic selection to the recommendations in the 2019 IDSA CAP guidelines was evaluated in patients treated before and after a pharmacy resident presented education to providers. Adherence was evidenced by the selection of appropriate initial antimicrobial therapy for the treatment of CAP. Specific scientific endpoints included the number of patients empirically initiated on the appropriate antibiotics as outlined by the 2019 IDSA CAP guidelines, number of patients in which MRSA screening was obtained, number of patients treated empirically for MRSA, and the number of patients treated empirically for *Pseudomonas* before and after pharmacist education. This study was approved by the institutional review board at the University at Buffalo.

**Results and Conclusion**: In progress

ASSESSMENT OF SAFETY OF REMDESIVIR IN PATIENT WITH ESTIMATED GLOMERULAR FILTRATION RATE (EGFR) < 30ML/MIN PER 1.73 M^2

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**Background**: The package insert states that remdesivir is not recommended in patient with eGFR<30ml/min/1.73m2 due to potential build-up of excipient, sulfobutylether-b-cyclodextrin. The lack of safety data has led the FDA to recommend that providers weigh the risks versus benefits of using it in this patient population.

**Objective**: The primary objective is to examine if there is a significant nephrotoxic risk with initiating remdesivir in patients with renal insufficiency (defined as eGFR < 30ml/min/1.73m2).

**Methods:** This is a retrospective chart review approved by institutional review board. Inclusion criteria include all patients ages 18 years and older admitted with coronavirus disease 2019 (COVID19) receiving remdesivir with a baseline eGFR<30ml/min/1.73m2. The primary outcome is the incidence of acute kidney injury (AKI) during treatment and change in eGFR from baseline to end of treatment and within 48 hours of completion of therapy.

**Results:** A total of 39 patients with eGFR<30 ml/min/1.73m2 prior to remdesivir initiation were identified and reviewed. The median baseline eGFR for all patients prior to remdesivir was 27.2 ml/min/1.73m2. Nine patients met the criteria for AKI. An improvement in eGFR was seen at the end of treatment day 5 or 10 with a final median (95% CI) change from baseline in eGFR of 9.3 ml/min/1.73m2(6.6-14.8). A similar eGFR improvement trend was observed within 48 hours of completion of therapy. There were no significant changes in or discontinuation of therapy due to elevated liver function test.

**Conclusion:** Remdesivir may be considered as a therapeutic option in this population with COVID-19 infection.

ANTICOAGULATION MANAGEMENT FOR IMPELLA PERCUTANEOUS VENTRICULAR ASSIST DEVICES: AN ANALYSIS OF A LARGE ACADEMIC HEALTH-SYSTEM EXPERIENCE

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**Background**: The Impella device is a percutaneous ventricular assist device (pVAD) that is utilized in various etiologies of cardiogenic shock as a form of temporary mechanical circulatory support (MCS). The manufacturer recommends administration of 5% dextrose with heparin 50 units/mL via a continuous purge solution that protects the pump by preventing blood from entering the motor, reducing the risk for pump thrombosis and device failure. Currently, large volume Impella centers may have high practice variability, even with a standardized protocol. Little consensus exists on the ideal strategy to balance bleeding and risk of thrombosis. This particularly applies to the management of different heparin purge concentrations, initiation of systemic heparin, and goal therapeutic range or laboratory monitoring parameter for anticoagulation.

**Objective:** The purpose of this study is to describe anticoagulation practices in patients who received an Impella device at our institution.

**Methods:** This is a retrospective, institutional review board approved chart review of adult patients requiring at least 24 hours of pVAD support and had received a heparin based purge solution monitored by anti-Xa and/or aPTT levels, between December 2014 to August 2020. Exclusion criteria included a history of heparin-induced thrombocytopenia, a pVAD solution with an alternative anticoagulant, or any use of a dextrose concentration > 5% as the diluent. The primary outcome is a composite endpoint of thrombotic and bleeding events. Secondary outcomes include time in therapeutic range, survival from MCS, and inpatient mortality.

**Results:** In progress

**Conclusion:** In progress

Assessment of Efficacy of Pharmacy Led Medication Reconciliation Education Initiative

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**Purpose**: Medication errors are common at the time of hospital admission, and these errors can adversely impact the care of the patient. Due to the impact of improper medication administration, the Joint Commission identified medication reconciliation as a key safety practice and deemed it a National Patient Safety Goal in 2005. Currently, at BronxCare Health System, the medical residents perform medication reconciliation. Due to time constraints and lack of prior experience with the process, many residents have trouble completing it effectively. Therefore, the pharmacy team will assess the change in compliance with medication reconciliation pre and post pharmacy led education.

**Methods**: The study design is a retrospective chart review which will occur after pharmacy led education. The education will focus on the proper methodology of obtaining and recording medication reconciliation. After educating the services included in this study, a pre and post analysis will be conducted to review the effectiveness of such intervention. The analysis will include adult patients under the care of internal medicine, family medicine, and surgery during the study period. Data collected will include: age, admission date, length of stay, home medications upon admission, medications prescribed during the first 24 hours of admission, discharge medications and clinical service. The primary outcome will be to assess if pharmacy led medication reconciliation education will improve compliance with the Joint Commission's mandate for medication reconciliation.

**Results**: In-progress

**Conclusion**: In-progress

INTEGRATION OF AN ON-HOLD FUNCTION INTO A VANCOMYCIN PER PHARMACY DOSING PROTOCOL

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**Background:** Vancomycin has a wide pharmacokinetic variability with exposure-dependent nephrotoxicity necessitating therapeutic drug monitoring. Pharmacist-driven vancomycin monitoring has shown to improve monitoring compliance of vancomycin levels and reduce the incidence of acute kidney injury. Since 2013, “Vancomycin Dosing per Pharmacy” has been an optional service at our institution. The goals of this service are to optimize dosing, decrease risk of nephrotoxicity, and prevent bacterial resistance. The most recent update of our institution’s electronic medical record (EMR) included pharmacists’ ability to place medication orders on hold.

**Objective:** The primary objective is to observe pharmacists’ workflow utilizing the current vancomycin protocol and incorporate an on-hold function into the ordering process. The secondary objective is to optimize the identification of patients with “Vancomycin Dosing per Pharmacy” orders using a standardized EMR list.

**Methods:** This is a single center, retrospective chart review. Pharmacists responsible for “Vancomycin Dosing per Pharmacy” orders will trial a different process to identify patients, evaluate and adjust vancomycin dosing. These pharmacists will be in-serviced on the on-hold function and how to utilize the standardized EMR list. Data to be collected will include the number of patients who were administered vancomycin dosed by pharmacy, the clinical indication, the number of times the vancomycin order required adjustment one month before and after the process changes. The time spent adjusting and evaluating orders, prevalence of nephrotoxicity, the number of appropriately drawn levels (peak and trough) and patients achieving therapeutic goals (trough or AUC) will also be collected

**Results:** In progress.

**Conclusion:** In progress.

OUTPATIENT THROMBOPROPHYLAXIS IN MALIGNANCY: A RETROSPECTIVE REVIEW

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**Background:** Venous thromboembolism (VTE) is a major cause of morbidity and mortality in patients with cancer. Primary thromboprophylaxis is not routinely recommended in this population. Low-molecular-weight heparin (LMWH) has been standard of care for treatment of cancer-associated VTE. Direct oral anticoagulants (DOACs) are emerging new therapeutic options for both the treatment and prevention of cancer-associated VTE and are recommended in the 2020 National Comprehensive Cancer Network and 2019 American Society for Clinical Oncology guidelines.

**Objective:** To identify patients with cancer who are candidates for outpatient thromboprophylaxis and provide recommendations. To develop a protocol to guide thromboprophylaxis prescribing of DOACs and LMWH for patients with cancer based on patient-specific factors.

**Methods:** Retrospective, single-center chart review of patients with cancer initiating chemotherapy who are potential candidates for outpatient thromboprophylaxis. The Khorana Risk Score was used to identify patients at low, intermediate, or high risk for cancer-associated VTE within 2.5 months of initiating chemotherapy. Thromboprophylaxis recommendations were provided for patients based on additional patient-specific factors, including bleeding risk, history of anticoagulation or thromboprophylaxis, and patient preference.

**Results:** In progress

**Conclusions:** In progress

D-DIMER LEVELS AND ANTICOAGULANTS IN COVID-19 PATIENTS

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**Background**: COVID19 causes coagulopathy as multiple systemic coagulation and inflammatory responses are activated during infectious complications. Interim guidelines recommend prophylactic anticoagulants to manage coagulopathy.

**Objective**: To analyze the anticoagulants used as well as D-dimer levels in COVID19 patients and their outcomes in order to help improve patient care in the future

**Methods**: Electronic medical record (EPIC) was used to conduct a retrospective analysis of the use of anticoagulants in COVID19 patients from April 1,2020 – June 30,2020.

**Results**: Two hundred adult patients were included in our study. Mortality rate was significantly higher in the ICU group as compared to the non-ICU group (60% vs 7.3%, respectively, p<0.0001). Of the 33 patients who died, 21 (63.64%) patients were initially on anticoagulation for DVT prophylaxis, 2 (6.06%) were not given anticoagulants, and 10 (30.3%) were started on therapeutic anticoagulation, although not statistically significant (p<0.2695). Peak D-dimer levels were significantly under the ROC curve demonstrated. Peak D-dimer levels had moderate discriminative power to predict higher in patients who died as compared to those who survived (3003 vs. 552.5 respectively, p<0.0001). Univariate logistic regression showed that peak D-dimer was a significant predictor of mortality (p<0.0012), and the corresponding area mortality (AUC=0.821). The optimal cutoff point in peak D-dimer for predicting mortality was 1079, with 83.9% sensitivity and 69.5% specificity.

**Conclusions**: Peak D-dimer levels were significantly higher in patients who died compared to those who survived.  These findings may aid in identifying individuals who are at a higher risk of mortality.

PREVALENCE OF PROPOFOL-RELATED INFUSION SYNDROME (PRIS) IN CRITICALLY ILL PATIENTS

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**Background:** PRIS is a serious and potentially fatal condition that is characterized by a spectrum of clinical symptoms and abnormalities. Literature suggests that a longer duration of greater than 48 hours or a dose greater than 83mcg/kg/min is associated with a higher risk of PRIS. Delayed treatment of PRIS can lead to death. It is likely that patients who develop PRIS may often go unrecognized as the manifestations of PRIS can overlap with common ICU conditions. The current prevalence of PRIS is unknown, however a prospective study has reported a prevalence of 1.1% in the critically ill patients.

**Objective:** Assess the prevalence of PRIS in critically ill patients.

**Methods:** Patients were identified by querying the NYU Langone Health COVID clinical data mart during March 1st to June 25th of 2020. Inclusion criteria includes patients receiving propofol for greater than 48 hours or patients receiving a dose greater than 60mcg/kg/min for 24 hours. Exclusion criteria includes pregnant patients, and patients with rhabdomyolysis prior to start of infusion.

**Results:** 432 patients were included in our study. Average dose of propofol infusion was 32.6mcg/kg/min with a mean infusion duration of 97 hours. Of the 432 patients, 6 patients were found to have developed PRIS during the propofol infusion with combination of multiple clinical manifestation. The prevalence of PRIS was 1.4%.

**Conclusions:** We suggest that patients should be monitored for signs of PRIS as it may be under recognized since PRIS is characterized by multiple clinical manifestation that overlap with critical illness.

**RETROSPECTIVE CHART REVIEW OF THE EMPIRIC USE OF LINEZOLID AND RATE OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS INFECTIONS IN THE CORONARY CARE UNIT**

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**Background:** Linezolid is typically the drug of choice for empiric methicillin-resistant Staphylococcus aureus (MRSA) coverage in our institution’s coronary care unit (CCU). It is unclear whether the patients who were given linezolid for empiric MRSA coverage actually have risk factors or if cultures were drawn to guide the use of antibiotics. This study was conducted to assess linezolid usage and MRSA infection rate in the CCU, which may help in establishing a protocol to optimize linezolid utilization.

**Objective:** The primary outcome was to determine the appropriateness of linezolid initiation based on documented indication and presence of MRSA risk factors. Secondary outcome was to determine the rate of MRSA culture and nares PCR positivity. Patients were excluded if they were on linezolid prior to CCU admission or admitted under another service.

**Method:** The institutional review board approved this retrospective chart review of patients who received at least two doses of linezolid during their CCU stay from January 2019 to July 2020. Descriptive statistics were performed.

**Results:** There were 93 patients included and 42 (45%) had risk factors for MRSA. Of the 63 patients with MRSA nares swabs, 7 (11.1%) tested positive for MRSA colonization. Of the 92 patients with cultures drawn, 6 (6.5%) had positive cultures for MRSA, and 4 out of these 6 also had positive MRSA nares swabs.

**Conclusion:** Linezolid was started in more than half of patients in CCU despite the absence of MRSA risk factors and the rate of MRSA culture and nasal PCR positivity was low.

DEVELOPMENT OF A DYNAMIC AUTOMATED DISPENSING CABINET USAGE ALGORITHM

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**Background:** Automated dispensing cabinets (ADC) have become an integral part of the medication use process. ADC track medication removals to increase workflow efficiency and prevent medication errors. Currently, our hospital utilizes set Periodic Automatic Replacement (PAR) levels and generate alerts to refill items when they fall below the set amount. This process requires manual adjustment for each item and may not reflect actual unit requirements.

**Objectives:** The objective of this project is to improve ADC inventory management by identifying quantifiable outcomes and developing a dynamic inventory strategy to update inventory on a routine basis.

**Methods:** A literature review was performed to find prior inventory management methodologies. One unit in the hospital was chosen to pilot this project. Medications in this unit were categorized by their status and usage. A report was created to determine potential outcomes that could be quantified. These outcomes included the average daily quantity of medications dispensed from the ADC, average daily medications dispensed from the central pharmacy to this unit, number of stockouts, number of expired medications, and vend-to-refill ratio.

Based on quantified outcomes deemed applicable for the pilot unit, an algorithm to determine the new PAR of medications will be developed. Inventory selected to be adjusted will be implemented in the central ADC system per algorithm recommendations. A report will be generated following the implementation of the ADC inventory change, which will measure the efficacy of the quantified outcomes and determine further adjustments to improve algorithm response.

**Results:** In progress

**Conclusions:** In progress

A SINGLE CENTER ANALYSIS OF SUGAMMADEX AND NEOSTIGMINE/GLYCOPYRROLATE UTILIZATION

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**Background:** Cholinesterase inhibitors, such as neostigmine, were conventionally used to reverse neuromuscular blockade until the discovery of a modified γ-cyclodextrin, sugammadex. Sugammadex forms a water-soluble complex with aminosteroid neuromuscular blocking agents (NMBAs) so NMBAs can move from the neuromuscular junction to the plasma. The use of sugammadex compared to the conventional agent(s) and its impact on post-anesthesia care unit (PACU) length of stay (LOS) has been mixed across studies. With this heterogeneity in results between sugammadex and neostigmine/glycopyrrolate for neuromuscular blockade reversal, we sought to describe these real-world differences at our institution.

**Objective:** To compare differences in time to operating room exit, PACU LOS, and their associated costs between surgical patients receiving sugammadex versus neostigmine/glycopyrrolate.

**Methods:** This was a single center, retrospective cohort study that included adult surgical patients greater than 18 years of age who received either sugammadex or neostigmine/glycopyrrolate for the reversal of neuromuscular blockade. Subjects were matched based on the criteria of body mass index, NMBA (rocuronium alone, vecuronium alone, vecuronium and rocuronium), and the time from NMBA administration to reversal agent administration. This study was granted exempt status by our Institutional Review Board.

**Results:** 142 patients were included in both the sugammadex and neostigmine/glycopyrrolate groups. Data analysis is ongoing and a full compilation of the results will be presented at the meeting.

**Conclusions:** Our conclusions will be based on the outcome of the analyzed data and will be presented at the Residency Research Practice Forum.

ANTICOAGULATION THERAPY IN ELDERLY PATIENTS WITH ATRIAL FIBRILLATION AT RISK FOR ACUTE ISCHEMIC STROKE

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**Background:** Stroke related to atrial fibrillation has shown to be detrimental to patient quality of life. The risk of stroke due to atrial fibrillation is seen to double with each decade after the age of 55 with the incidence being as high as 23.5% in patients between the ages of 80-89 years. Current guidelines recommend and support the use of oral anticoagulation in patients at high risk of stroke with atrial fibrillation. Despite the proven benefits of oral anticoagulation in stroke prevention, studies have identified the gross underuse of anticoagulation in the elderly, even when more comorbidities were present. Impairments including fall risk, bleed risk, cognitive impairment, and frailty were common reasons cited as to why patients were not eligible for treatment. However, it has been shown that treatment still benefits patients who do fall and outcomes do not differ by impairment status.

**Objective:** The primary objective was to determine if patients who were on anticoagulation prior to admission had a lower risk of stroke compared to those that were not on anticoagulation.

**Methods:** This was a retrospective, single-center, case-control study. The primary outcome was rate of stroke in those greater than or equal to 75 years of age with atrial fibrillation on anticoagulation versus those that were not. All research represented was approved by the University at Buffalo School of Pharmacy and Pharmaceutical Sciences’ institutional review board.

**Results:** Data collection and analysis is ongoing.

**Conclusions:** Data collection and analysis is ongoing.

TIMING OF P2Y12 INHIBITORS IN NON-ST SEGMENT ELEVATION MYOCARDIAL INFARCTION (NSTEMI) AND DELAYED CARDIAC CATHERIZATION

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**Background:** Patients who present with NSTEMI should receive a P2Y12 inhibitor regardless of the treatment strategy. Patients can be pre-treated with a P2Y12 inhibitor which occurs prior to cardiac catherization, or receive late administration during cardiac catherization. Pre-treatment with a P2Y12 inhibitor may lead to reduce peri-procedural thrombotic complications, reduce ischemic, stent thrombosis, and limit glycoprotein IIb/IIIa use. Pre-treatment may increase the risk of bleeding in patients undergoing invasive interventions, and are often contraindicated 5-7 days prior to coronary artery bypass grafting procedures. Pharmacokinetically, late administration of P2Y12 inhibitors may not allow for adequate platelet inhibition. The ideal timing of P2Y12 inhibitors remains controversial in patients presenting with NSTEMI who undergo delayed cardiac catherization (> 24 hours from initial presentation).

**Objective:** The objective of this study was to determine the safety and effectiveness of early versus late administration of P2Y12 inhibitors in patients presenting with an NSTEMI who do not go to the cardiac catherization lab within 24 hours from initial presentation. The primary outcome is bleeding events as defined by the ISTH-SCC. Secondary endpoints include troponin peak, change in ejection fraction from baseline to after cardiac catherization, and length of stay post catherization.

**Methods:** This was a retrospective chart review study at Kaleida Health facilities. Patients were included if they were 18 years of age or older and had an NSTEMI, went to the cardiac catherization lab > 24 hours from initial presentation, received a percutaneous coronary intervention or coronary artery bypass grafting, and received a P2Y12 inhibitor.

**Results:** Data collection and analysis is ongoing.

**Conclusions:** Data collection and analysis is ongoing.

CHARACTERIZING THE USE OF ANTICOAGULANTS IN PERIPHERAL ARTERY DISEASE

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**Background**: There is currently limited guidance on the use of anticoagulation in patients with peripheral artery disease (PAD). Following the COMPASS-PAD trial, the anti-Xa inhibitor rivaroxaban was FDA approved for use in patients with chronic PAD for reduction of major cardiovascular events. The purpose of this study was to characterize the different anticoagulation regimens that are used to treat PAD and to identify major adverse effects associated with them.

**Objectives**: The primary outcome was the presence of ISTH clinically relevant major or non-major bleeding. Secondary outcomes included the presence of major adverse cardiovascular outcomes such as stroke or acute coronary syndrome as well as adverse limb events such as amputation or revascularization.

**Methods**: This was a multicenter, retrospective, medication use evaluation for all patients prescribed oral anticoagulants by a vascular provider from two hospitals in the health-system from January 1, 2018 through December 31, 2019.

**Results**: After exclusions, 52 patients were included in the final analysis. The most common anticoagulant regimen prescribed was apixaban 5 mg twice daily in 69% (36/52) of the patients. The regimen of rivaroxaban 2.5 mg twice daily was prescribed in only one of the patients analyzed. There was no significant difference between any of the regimens in the primary outcome (p=0.28) or the secondary outcomes (p=0.51).

**Conclusions**: The approved regimen of rivaroxaban 2.5 mg twice daily was the least common anticoagulant regimen prescribed. Although there was no significant difference in the outcomes between groups, education needs to be provided about the existence the approved regimen.

INCREASE RATE OF ADMINISTRATION OF HIGH-DOSE INTRAVENOUS THIAMINE IN HOSPITALIZED PATIENTS WITH ALCOHOL USE DISORDER

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**Background:** Our institution admits around 300 patients per month for alcohol withdrawal symptoms. Thiamine deficiency in alcohol use disorder (AUD) often leads to short-lived and severe Wernicke encephalopathy (WE) and a long-lasting and debilitating Korsakoff psychosis (KP) - neurological disorders that can lead to death. Parenteral thiamine can reverse WE if administered within the first 48-72 hours of the onset of symptoms and prevents fatality associated with WE

**Objective:** This retrospective study aims to conduct quality improvement methodologies to increase the proportion of the administration of parenteral high-dose thiamine (HDT) in AUD patients at our institution

**Methods:** Our goal is to increase proportion of administration of at least one dose of HDT within 24 hours of admission from 30 to 90% by June 2021. This project was approved by the Institutional Review Board (IRB) and received an exemption. Using quality improvement methodologies, one test of change is to link HDT to chlordiazepoxide order panel in our electronic medical record; thus, allowing prescribers to have HDT included in the panel when prescribing chlordiazepoxide for alcohol withdrawal. This change will not create an extra alert in the system eliminating alert fatigue; however, prescribers will have an option to unlink HDT if wished to do so

**Results:** Chlordiazepoxide with HDT updated panel is going live in March 2021 – awaiting results

**Conclusions:** pending

EVALUATION OF PHARMACIST-DRIVEN COMPREHENSIVE CARE PLANNING ON CLINICAL OUTCOMES AMONG PATIENTS WITH UNCONTROLLED TYPE 2 DIABETES

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**Background:** In 2017, the annual cost of diabetes care in the United States was $327 billion. As a result, the American Diabetes Association highlighted Wagner’s Chronic Care Model as a framework to reduce cost and improve diabetes care. At our institution, clinical pharmacy services offered within primary care practices include many components of Wagner’s CCM, including comprehensive care planning. Therefore, the objective of this study is to evaluate the impact of pharmacist-led care planning on clinical and population health outcomes among patients with uncontrolled type 2 diabetes, compared to patients managed by primary care physicians only.

**Objectives:** The primary outcomes are the number of completed guideline-directed diabetes care interventions and the average absolute change from baseline in A1C. Secondary outcomes include change from baseline in LDL, change from baseline in eGFR and urinary albumin, diabetes related emergency department visits, urgent care visits, and hospitalizations, no show rate, diabetes medication adherence, and statin prescribing.

**Methods:** A retrospective chart review will be performed. Patients with type 2 diabetes managed by a pharmacist and primary care physician will be assessed for inclusion eligibility and matched with patients managed by a PCP only. Patients aged 18 years and older with uncontrolled type 2 diabetes and engaged in care will be included. Patients will be excluded if they have a history of type 1 diabetes, bariatric surgery, or if inadequate lab data is available in the medical record. Descriptive statistics such as means and percentages will be used for analysis.

**Results:** Research in progress.

**Conclusions:** Research in progress.

EVALUATION OF OUTCOMES IN PATIENTS WITH INTRACEREBRAL HEMORRHAGE RECEIVING PLATELET TRANSFUSIONS STRATIFIED BY RETROSPECTIVE ASSESSMENT OF PLATELET FUNCTION ASSAY RESULTS

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**Background:** Intracerebral hemorrhage (ICH) is a common and devastating stroke syndrome. About one-third of patients presenting with primary ICH are on antithrombotic (anticoagulation and antiplatelet) medications. Currently no guidelines recommend routine use of platelet transfusions in patients on chronic antiplatelet therapy. In practice platelet transfusions are often used in this population. Platelet response tests are routinely drawn prior to platelet transfusion but transfusions are often given regardless of these results.

**Objectives:** The objective of this study is to review cases of primary ICH in patients on antiplatelet medications who received a platelet transfusion. Patients will be grouped based on the result of their pre-transfusion platelet response test. The primary outcome will be Modified Rankin Score (mRS) at hospital discharge. Secondary outcomes will include discharge disposition, in-hospital mortality, and hospital length of stay.

**Methods:** This study is a retrospective cohort study analyzing patients who received platelet transfusions at Buffalo General Medical Center. Patients will be included if they, present with non-traumatic primary ICH, receive a platelet transfusion within six hours of presentation, and have documented home antiplatelet therapy. Key exclusion criteria include known use of home anticoagulation, withdrawal of care within 24 hours of presentation and pre-platelet transfusion platelet counts less than 100 cells x 109/L. The primary outcome will be collected by study personnel blinded to results of initial platelet response tests.

**Results:** Results pending

**Conclusion:** Results pending

SAFETY AND EFFICACY OF DIRECT ORAL ANTICOAGULANTS FOR THE TREATMENT OF PORTAL VEIN THROMBOSIS IN PATIENTS WITH LIVER CIRRHOSIS

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**Background:** Studies have shown direct oral anticoagulants (DOACs) to be as safe and effective as traditional anticoagulants, such as low-molecular weight heparin (LMWH) and warfarin, for the treatment of portal vein thrombosis (PVT) in cirrhotic patients. However, the optimal management remains ambiguous with limited data.

**Objective:** The purpose of this research is to compare the safety and efficacy of DOACs to traditional anticoagulants in cirrhotic patients with PVT.

**Methods:** This is an institutional review board approved, retrospective cohort chart review utilizing electronic medical records taken from North Shore University Hospital, Long Island Jewish Medical Center, and Lenox Hill Hospital from October 31st, 2010 to August 31st, 2020. Treatment response and safety will be assessed by comparing cirrhotic patients on DOACs versus traditional anticoagulants for the treatment of PVT. Exclusion criteria includes those receiving anticoagulant therapy for conditions other than PVT, age less than 18, pregnancy, and breastfeeding. Data to be collected includes age, sex, anticoagulants, Child-Pugh Score, concomitant medications, MELD-Na Score, international normalized ratio (INR), radiological imaging, adverse medication reactions, hemoglobin, and platelet counts. The primary endpoint is the rate of non-progression or recanalization of PVT at 6 months (plus or minus 3 months) between the two treatment arms. The primary safety endpoint includes rate of major bleeding, defined by a hemoglobin drop of two or greater, transfusion requirements, or need for reversal antidote.

**Results:** In-progress

**Conclusion:** In-progress

SAFETY AND EFFICACY OF DIRECT ORAL ANTICOAGULANTS FOR THE TREATMENT OF VENOUS THROMBOEMBOLISM IN PATIENTS DIAGNOSED WITH CANCER OF THE GASTROINTESTINAL TRACT

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**Background:** Venous thromboembolism (VTE) is a common complication in cancer patients. Current treatment of cancer-associated VTE include low molecular weight heparin (LMWH), direct oral anticoagulant (DOACs), and warfarin. The use of DOACs are appealing based on their ease of use, leading to better patient adherence compared to self-injections with LMWH and is supported by NCCN in the cancer population without gastric lesions. However, based on several landmark trials, there are conflicting data regarding the use of DOACs and the risk of major bleeding in gastrointestinal cancers. Our study will provide further information on the overall risk and safety in this specific patient population.

**Objective:** Our primary outcome will compare the rate of major bleeds between patients with gastrointestinal malignancies and VTE treated with DOACs, LMWH or, warfarin. Secondary outcomes will include major, clinically-relevant non-major, and minor bleeding episodes, time to first bleeding event, recurrent VTE, and all-cause mortality in all cancer patients.

**Methods:** The Institutional Review Board deemed this study exempt.This will be a retrospective observational chart review evaluating all patients with malignancies who were admitted with a confirmed or documented diagnosis of VTE on treatment with apixaban, rivaroxaban, edoxaban, LMWH, or warfarin. Chart review will include documenting patients who experienced bleeding, recurrent VTE, or mortality between 01/01/2016 and 12/31/2019.

**Results:** Pending

**Conclusion:** Pending

RATES OF NEPHROTOXICITY WITH INFUSIONAL DCEP (DEXAMETHASONE, CYCLOPHOSPHAMIDE, ETOPOSIDE CISPLATIN)

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**Background:** Renal impairment is a frequent complication in multiple myeloma (MM) that makes the use of nephrotoxic agents concerning. DCEP (dexamethasone, cyclophosphamide, etoposide, and cisplatin) therapy is administered as a continuous intravenous infusion over 96 hours for relapsed/refractory MM patients. Cisplatin is a highly nephrotoxic agent that has been associated with acute kidney injury (AKI) in up to one-third of patients; however, the incidence is unclear with this regimen in MM.

**Objective:** Analyze the rates of nephrotoxicity and duration of myelosuppression in MM patients treated with the DCEP regimen.

**Methods:** The proposed study will be a single center, retrospective, electronic medical record review of a random sample of 80 patients with MM who received DCEP therapy between February 2015-February 2020. Patients will be stratified into groups according to baseline renal function, calculated using the Cockcroft-Gault Creatinine Clearance (CrCl) equation. The ranges for renal clearance in each group are based on the institution’s renal dose adjustment protocol for cisplatin therapy. The groups differentiate between patients on hemodialysis, CrCl < 10 mL/min, CrCl 10 mL/min to 50 mL/min, or CrCl > 50 mL/min. AKI will be defined using the KDIGO (Kidney Disease: Improving Global Outcomes) criteria. Primary outcome will be the development of AKI associated with DCEP therapy. Secondary outcomes will be the duration of filgrastim use, duration of neutropenia and thrombocytopenia, duration of neutropenic fever, concomitant use of nephrotoxic agents, and use of intravenous hydration methods.

**Results:** Pending Institutional Review Board approval

**Conclusion:** Pending

INCIDENCE OF HYPER- AND HYPOGLYCEMIA IN PATIENTS CONTINUING NONINSULIN GLUCOSE-LOWERING THERAPIES IN THE INPATIENT SETTING

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**Background:** Both hyperglycemia and hypoglycemia are associated with adverse outcomes in hospitalized patients. While insulin is the preferred medication for inpatient hyperglycemia management, the American Diabetes Association states that the safety and efficacy of noninsulin glucose-lowering therapies is an area of active research and is supported by some studies.

**Objective:** To assess the incidence of hypo- and hyperglycemia in patients receiving insulin alone versus insulin plus noninsulin glucose- lowering therapies.

**Methods:** This is a retrospective cohort study of patients who received insulin alone or insulin plus noninsulin glucose-lowering therapies while admitted to Kingsbrook Jewish Medical Center between January 2019 and July 2020. Patients will be included if they were admitted to a general medicine unit and were at least 18 years of age with a diagnosis of Type 2 Diabetes Mellitus and an order for insulin alone or insulin plus noninsulin glucose-lowering therapies. Exclusion critieria included patients that did not have an insulin order or were admitted to an intensive care unit. The primary endpoint of the study is the number of hypo- and hyperglycemic events per patient days between the two groups. Secondary endpoints of the study are the average total daily dose of insulin and hospital length of stay in patients receiving insulin alone or insulin plus noninsulin glucose-lowering therapies.

**Results:** Pending

**Conclusions:** This study will identify rates of hypo- and hyperglycemia in patients receiving insulin alone versus insulin plus noninsulin glucose-lowering therapies to further elucidate the role of noninsulin glucose-lowering therapies in the management of inpatient hyperglycemia.

DO PHARMACY STUDENTS IMPACT THE TIME TO CONVERSION FROM INTRAVENOUS TO ORAL ANTIBIOTICS WHEN FOLLOWING AN AUTOMATIC CONVERSION POLICY IN A COMMUNITY HOSPITAL SETTING?  
  
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**Background:** An automatic conversion policy (ACP) allows pharmacists to transition specific antibiotics from IV to PO when clinically appropriate, potentially reducing healthcare costs, length of stay (LOS), and risks for IV-related complications. It is presumed that P4 pharmacy students (P4s) can support the healthcare team by impacting time to conversion (TTC) from IV to PO antibiotics.

**Objective:** To determine the impact of P4-driven interventions on TTC from IV to PO antibiotics while following an ACP.

**Methods:** The IRB granted this single-center, retrospective, pre-post study exempt status. The electronic health record was used to identify patients with IV administrations of an ACP antibiotic between 9/22/2019-11/2/2020 (pre-period) and 9/21/2020-12/11/2020 (post-period). Admitted non-ICU patients, ≥18 years, receiving an ACP antibiotic for >48 hours were included. One hour of live ACP and patient assessment education was written by the primary author and provided to P4s. The primary outcome was time between the first IV and PO antibiotic orders, or IV antibiotic discontinuation (including at time of discharge) if conversion to PO did not occur. Secondary outcomes included number of patients reviewed by P4s, number identified for conversion, number converted, LOS, and drug acquisition cost savings.

**Results:** During the pre-period, 375 patients were administered an ACP antibiotic; 102 (27.2%) were included. The median (IQR) TTC was 75 (60.3-98.4) hours, post-period results pending. During the post-period, five P4s spent 118 hours over 12 weeks reviewing 408 patients; 110 were eligible for conversion and 61 were converted. Post-period results are currently unavailable.

**Conclusions:** Analysis pending post-period data collection.

EVALUATING THE TIME TO ORAL STEP-DOWN THERAPY FOR GRAM-NEGATIVE BLOODSTREAM INFECTIONS ASSOCIATED WITH A GENITOURINARY SOURCE

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**Background:** Gram-negative bloodstream infections (BSI) can often present with a genitourinary source. Typical management includes intravenous antibiotics until the patient is stable, after which point therapy can be de-escalated to an appropriate oral agent. This transition can lead to decreased length of stay, avoid central line access, and can improve patient quality of life. There has been conflicting evidence published on what the optimal agent for de-escalation is, with the agent’s oral bioavailability potentially impacting outcomes. While some studies did evaluate whether oral therapy was initiated earlier or later in the antibiotic course, to our knowledge, no study has evaluated when the most appropriate time to oral step-down therapy is, or if the bioavailability of the agent selected for oral therapy impacts outcomes at different time points.

**Objective:** The purpose and primary objective of this study is to assess if the time to oral step-down therapy for patients with gram-negative BSI secondary to a genitourinary source impacts clinical success.

**Methods:** This study was approved by the institutional review board. This was a retrospective observational chart review evaluating patients with a gram-negative BSI from a genitourinary source who received intravenous antibiotics with or without oral antibiotics during the study period of January 2019 to December 2019. Treatment success was measured by evaluating 30-day all-cause mortality, recurrence of infection with the same index organism at 30 days, readmission within 30 days for a related infection, hospital length of stay, and total duration of therapy.

**Results:** Research in progress

**Conclusions:** Research in progress

SAFETY OF THERAPEUTIC ANTICOAGULATION IN CRITICALLY ILL COVID-19 POSITIVE PATIENTS

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**BACKGROUND:** Hospitalized patients with COVID-19 develop thrombotic complications such as deep vein thrombosis (DVT) and pulmonary embolism (PE) as a result of abnormalities in coagulation markers. Current guidelines from the CHEST Pulmonary and Cardiovascular recommend for patients with confirmed radiographic evidence or high clinical suspicion of thromboembolic disease to receive parenteral anticoagulation with therapeutic LMWH, IV UFH, apixaban or rivaroxaban. However, there is insufficient data to evaluate the safety and efficacy of therapeutic doses of these thrombolytic agents for the treatment and prevention of COVID-19–related microthrombotic disorders in hospitalized patients.

**OBJECTIVE:** This study aims to evaluate the safety of therapeutic anticoagulation in critically ill patients with COVID-19. It also aims to investigate patients’ survival to discharge if treated with therapeutic anticoagulation.

**METHODS:** This is aretrospective chart review in hospitalized COVID-19 positive patients who were initially started on therapeutic anticoagulation with either enoxaparin or apixaban with suspected or confirmed DVT/PE from 03/1/20 to 06/30/20. Data collected includes age, gender, race, weight, BMI, comorbidities, laboratory results, reason for ICU admission, development of thromboembolic disease, and bleeding complications. The principal safety outcomes were major bleeding and survival to discharge. Patients were excluded if they were admitted to medical floor and had active pathological bleeding (hemoglobin drop>2g/dL), platelets<50 k/ul or fibrinogen<100mg/dL. Categorical (nominal) data using either a chi-squared test or a non-parametric equivalent, such as a Fisher’s Exact Test was used to analyze the data, based on factors of the distribution and normality.

**RESULTS:** Research in progress

**CONCLUSION:** Research in progress

**Disclaimer:** This research was approved by the institutional review board on October 8, 2020, IRB # 10 08 20 05.

IMPACT OF ELECTRONIC ORDER ALERTS ON PRESCRIPTION OF POTENTIALLY INAPPROPRIATE MEDICATIONS IN THE ELDERLY

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**Background**: Computerized physician order entry system (CPOE) alerts have been a recent technological advancement in the last two decades that have drastically improved prescribing practices. However, the current literature shows mixed results regarding alerting in the geriatric population specifically. A geriatric alerting process will be implemented at NYU Langone Hospital CPOE that involves active alert pop-ups in combination with age-context order defaults for dosing, frequency, and order instructions as a passive alerting option respectively. Potentially inappropriate medications (PIMs) that were flagged for alerting were compiled from resources such as the Beers Criteria, HEDIS, and the STOPP/START Criteria, and the final list was decided upon by a consensus of geriatric providers in our health system.

**Objective**: The primary outcome is to observe change in prescription rates pre and post alert implementation for all PIMs that were designated to be alerted.

**Methods**: This is a prospective, single-center, pre-post observational study to assess the new medication safety initiative for geriatric patients in the NYU Langone Health System. Pre implementation data will be collected over the month of March 2021, and post implementation data will be collected over the month of April 2021. Alerting will be active for all inpatients over the age of 65.

**Results**: Pre and post prescription rates are anticipated to be calculated by May 1st

**Conclusions**: The implementation of an CPOE alerting system for geriatric patients that utilizes active and passive measures may serve to reduce the prescription rate of PIMs

EVALUATE EFFICACY AND SAFETY OF DUAL ANTIPLATELET THERAPY COMBINING HIGH DOSE ASPIRIN AND TICAGRELOR FOR NEUROVASCULAR STENTING PROCEDURES

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**Background:­­**

Dual antiplatelet therapy with aspirin and a P2Y12 inhibitor is utilized after neurovascular stenting due to increased risk of thromboembolism. Clopidogrel is often used, but in cases of clopidogrel resistance, ticagrelor can be used as an alternative. While the optimal doses for these agents are not established in the neurovascular context, ticagrelor carries a black box warning (BBW) suggesting that higher doses of aspirin (i.e >100 mg/day) may decrease efficacy of ticagrelor. Because this BBW was derived from the results of the Platelet Inhibition and Patient Outcomes (PLATO) trial, which focused on patients with acute coronary syndrome, the implications of this potential interaction are unclear in the neurovascular setting. Despite this potential interaction, aspirin 325 mg daily and ticagrelor 60-90 mg twice daily are utilized to treat patients receiving neurovascular stents.

**Objectives:**

This study will assess the efficacy and safety outcomes of using high dose aspirin with ticagrelor in patients undergoing neurovascular stenting.

**Methods:**

This is an institutional review board approved, single-arm, retrospective chart review of patients who received aspirin 325 mg daily and ticagrelor 60-90 mg twice daily after neurovascular stenting at North Shore University Hospital between January 1, 2018 to December 31, 2019. The primary outcome was to assess: 1) frequency of any predefined thrombotic event (ischemic stroke, stent thrombosis, or death) and 2) frequency of any predefined bleeding (intracranial hemorrhage, gastrointestinal hemorrhage, or death) during treatment. Descriptive statistics will be used to evaluate the primary outcome endpoints of thrombotic and bleeding events.

**Results:**

In-progress

**Conclusion:**

In-progress

PHARMACIST-DRIVEN DISCHARGE ANTIMICROBIAL REVIEW PROCESS AT AN ACADEMIC MEDICAL CENTER

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**Background:** The CDC estimates approximately 30% of antimicrobials prescribed in the outpatient setting are unnecessary. Antimicrobial stewardship (AS) efforts often focus on the inpatient setting but most antimicrobial consumption (>60%) occurs among outpatients. However, limited data describe AS interventions at hospital discharge.

**Objectives:** The objective was to describe the impact of an AS program on discharge oral antimicrobial prescriptions. The primary outcome was the percentage of prescriptions with ≥ 1 drug related problem (DRP) identified by an infectious diseases (ID) pharmacist. Secondary outcomes included the percentage of prescriptions with > 1 intervention performed, the intervention acceptance rate, and the reduction in antimicrobial days dispensed at discharge when interventions to limit treatment were accepted by the physician.

**Methods:** This was a single-center, retrospective cohort study. Patients prescribed an antimicrobial at discharge were included if the prescription was sent to our hospital-affiliated outpatient pharmacy and reviewed by an ID pharmacist prior to being dispensed. This study was granted exemption from the Institutional Review Board.

**Results:** In a 6-month period, 803 antimicrobial prescriptions were reviewed. At least one DRP was identified in 43.1% (n=346) and > 1 intervention was performed in 42.8% (n=344). The overall intervention acceptance rate was 75.6% (331/438). The median (IQR) number of antimicrobial days decreased from 8 (5 – 10) days to 4 (0 – 6) days when physicians accepted interventions to limit treatment (P<0.001).

**Conclusions:** Our AS program frequently identified DRPs among discharge antimicrobial prescriptions. We encourage others to implement a discharge AS program in order to identify DRPs.

EMPIRIC MANAGEMENT OF FOOT INFECTIONS & ASSOCIATED SURGICAL SITE INFECTIONS: A QUALITY IMPROVEMENT PROJECT

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**Background:** Foot infections may arise in patients with diabetes, vascular disease, or in association with a surgical site wound. Empiric regimens are controversial with most of the available literature limited to diabetic foot wounds. The current practice at our institution is often provider preference, and many patients are started empirically on ampicillin/sulbactam.

**Objective:** To determine if ampicillin/sulbactam is an appropriate empiric regimen in patients with foot infections associated with diabetes, vascular disease, and surgery. To identify a suitable alternative regimen if empiric ampicillin/sulbactam is suboptimal.

**Methods:** Retrospective chart review of patients admitted for foot infections associated with diabetes, vascular disease, or surgery. Patients were divided into two groups: surgical site infections and non-surgical site infections. The primary outcome was the percentage of patients started on empiric ampicillin/sulbactam with adequate coverage based on culture.

**Results:** In progress

**Conclusions:** In progress

IMPLEMENTATION OF A PHARMACIST-DRIVEN ANTIMICROBIAL STEWARDSHIP INITIATIVE IN PRIMARY CARE: A MULTICENTER EVALUATION

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**Background:** It is estimated that half of antibiotics prescribed in the outpatient setting are inappropriate in terms of medication selection, dosing, and duration. In 2015, a National Action Plan for Combating Antibiotic Resistance Bacteria was released, targeting a 50% reduction in inappropriate antibiotic prescribing in the outpatient setting. Effective January 1st, 2020 new antimicrobial stewardship requirements became applicable to Joint Commission-accredited ambulatory health care organizations that routinely prescribe antimicrobial medications.

**Objective:** The primary objective of this study is to measure the impact of an antimicrobial stewardship educational initiative in the ambulatory care setting via changing of prescribing patterns.

**Methods:** This project was approved by the Institutional Review Board as a two-phase pre-post study design. The first phase is a retrospective chart review of the electronic medical record to assess historical antimicrobial prescribing patterns. The second phase is a chart review to assess prescribing patterns after the intervention; implementing educational materials at the ambulatory care clinic. These educational materials will include a reference sheet specifying recommended empiric treatments, algorithms for determining empiric treatment for varying types of urinary tract infections, and educational presentations by the pharmacy team

**Results:** Research in progress

**Conclusions:** Research in progress

IMPACT OF PHARMACY-DRIVEN EDUCATION ON CEFAZOLIN UTILIZATION IN PATIENTS WITH A LABELED PENICILLIN ALLERGY

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**Background:** Anti-staphylococcal penicillins and cephalosporins are preferred agents for methicillin-susceptible staphylococcus aureus (MSSA) infection treatment, and patients with a labeled penicillin allergy are likely to receive inferior therapy. At our institution, a policy outlines appropriate use of cefazolin in penicillin-allergic patients.

**Objective**: To determine the impact of pharmacist and prescriber education on cefazolin utilization for MSSA infections in patients with a labeled penicillin allergy (hives, rash, or intolerance).

**Methods:** The IRB granted exempt status for this single-center, retrospective, observational, pre-post study. Study periods ranged from 1/1/2018-7/29/2020 (pre) and 10/1/2020-6/30/2021 (post). A report of positive MSSA cultures from all sources was provided by the microbiology laboratory. Patients >18 years, with a documented penicillin allergy of hives, rash or intolerance, admitted with any MSSA infection were included. The primary author created education on the hospital’s policy. Prescribers received written, and pharmacists received live and/or written education. The primary outcome was percentage of patients meeting inclusion criteria on cefazolin. Secondary outcomes included time (hours) to cefazolin conversion, number of adverse events that led to cefazolin discontinuation, and length of stay (days).

**Results:** In the pre-period, 124 patients met inclusion criteria. Following exclusion criteria screening, 54 (44%) remained. Thirty-five (65%) were converted to cefazolin in a median (IQR) of 44 (27.3-70.7) hours. Cefazolin was discontinued in 1 patient due to a rash that developed 6 days after initiation. Length of stay was a median (IQR) of 7.0 (4.0 – 12.8) days. Post-period results are currently pending.

**Conclusions:** Analysis is pending post-period data completion.

EFFECT OF INSULIN VERSUS ORAL AGENTS ON EARLY GLYCEMIC CONTROL FOLLOWING KIDNEY TRANSPLANT

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**Purpose:** There is limited evidence analyzing the effectiveness of oral therapies relative to insulin on glycemic outcomes following kidney transplantation (KTx).

**Methods:** This was an IRB-approved, single-center, retrospective study of adult KTx recipients between 01/2014-05/2020, with new or worsening hyperglycemia. Patients were excluded if they had received a prior or combined organ transplant, had a history of type 1 diabetes or HIV, were converted to belatacept, or were on intensive insulin prior to transplant. Patients discharged on oral medications were matched 1:1 with patients receiving intensive insulin based on pre-transplant diabetes regimen, baseline hemoglobin A1c (HbA1c), duration of diabetes, and steroid maintenance. The primary endpoint was the number of hyperglycemia-related readmissions within 6 months of KTx. Key secondary endpoints included HbA1c at 6 months post-transplant, serum glucose levels within 1 month of KTx, and treated urinary or bloodstream infections.

**Results**: 30 patients prescribed intensive insulin were matched to 30 patients receiving oral therapies based on clinical parameters. Baseline characteristics were similar between groups, except there were more Caucasians in the insulin group. There were no differences between groups in the incidence of the primary endpoint (3.3% vs 6.7%; p=0.55) or all-cause readmissions within 30 days; however, 9 patients in the oral group required the use of emergency sliding scale insulin and 7 (23.3%) subsequently were converted to standing insulin. All secondary efficacy outcomes were similar between groups.

**Conclusions:**  This study suggests that the early use of oral antiglycemics post-KTx in select patients results in similar outcomes relative to insulin therapy.

IMPACT OF FORMULARY CHANGES TO SELECT OPIOID MEDICATIONS ON OPIOID USE WITHIN A COMMUNITY HEALTH PLAN

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**Background:** In response to the opioid epidemic, health plans have instituted various pharmacist-led utilization management strategies promoting responsible use of opioids. Capital District Physicians’ Health Plan implemented new quantity limits (QL) on July 1, 2020 in alignment with the change in the Healthcare Effectiveness Data and Information Set (HEDIS) definition of a high dose from 120 to 90 morphine equivalent dose (MED)/day. A prior authorization requirement was also put in place for four high-potency immediate release (IR) opioid products.

**Purpose:** To examine the impact of quantity limit and formulary status modifications on prescribing practices and utilization of opioid medications. The primary outcome was change in number of members receiving >90 MED/day.

**Methods:** This was a retrospective, pre-post review of pharmacy claims from January 1, 2020-December 31, 2020.

**Results:** The number of members utilizing >90 MED/day decreased by 54% (352 vs. 161) overall and by 76% (30 vs. 7) for acute pain, defined as ≤7 day supply. Average MED/day decreased 4% overall (36.7 vs. 35.4). Average MED/day decreased 3% (134.0 vs. 129.4), claims over QL decreased 1% (579 vs. 572), and average MED/day over QL decreased 7% (184.5 vs. 172.4) for IR opioid products. Average MED/day decreased 2% (31.7 vs. 31.1) and claims over QL decreased 65% (336 vs. 117) for opioid-acetaminophen combination products.

**Conclusions:** Implementation of stricter quantity limits and prior authorization requirements produced a decrease in the number of members utilizing >90 MED/day, average MED/day, and use of high doses for acute pain, indicating positive changes in prescribing practices.

IMPACT OF A PHARMACIST-DRIVEN COLLABORATIVE DRUG THERAPY MANAGEMENT AGREEMENT ON PARTICIPATION RATES IN A DISCHARGE PRESCRIPTION PROGRAM

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**Background**: Discharge prescription programs have been shown to decrease hospital readmissions in cardiology patients; however, there is little information on successful ways to increase participation. One observed reason patients decline to participate in our program is loyalty to their regular pharmacy. A collaborative drug therapy management (CDTM) agreement within the cardiology services at this institution was implemented in 2019: for discharge prescriptions with refills, a pharmacist with a CDTM agreement forwarded refills to the patient’s preferred pharmacy.

**Objectives**: The primary objective was to assess if the CDTM component increased the proportion of patients participating in the discharge prescription program. The secondary objective was to assess if the program decreased 30-day all-cause readmissions.

**Methods**: This was a single-center, quasi-experimental pre-post intervention study to assess the newly implemented CDTM component in cardiology patients discharged to home. The historical control group included patients enrolled in the program in the year prior to implementation. Chi-squared tests were used to assess primary and secondary outcomes and a p-value of <0.05 was considered significant. Approval was granted by the Institutional Review Board at the University at Buffalo.

**Results**: There were 2200 patients in the intervention group and 1704 patients in the control group. There was a statistically significant increase in the proportion of patients participating in the discharge prescription program (77.8% vs. 68.7%, p<0.0001). There was no significant difference in 30-day all-cause readmissions in the intervention group (14.8% vs. 14.3%, p=0.67).

**Conclusion**: The implementation of a pharmacist-driven CDTM agreement was associated with increased participation in the discharge prescription program.

EVALUATION OF THE PHARMACIST ROLE IN INPATIENT HYPERGLYCEMIA MANAGEMENT

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**Background:** Uncontrolled hyperglycemia in the inpatient setting leads to increased mortality, infections, and hospital length of stay. To improve the management of hyperglycemia in hospitalized patients, South Shore University Hospital implemented a quality improvement initiative through a multidisciplinary diabetes taskforce. As part of this new patient care process, a pharmacist reviewed patients who were hyperglycemic within 48 hours of hospital admission to identify potential risk factors associated with hyperglycemia and to provide recommendations to improve blood glucose levels. Through this study, we aim to assess the impact of pharmacist interventions on hyperglycemia management.

**Objectives:** The primary outcomes of this study were to compare the monthly institutional hyperglycemia rates during the three-month investigational period to the three months prior, as well as 2019 hyperglycemia rates. The secondary outcomes were to identify risk factors associated with hyperglycemia, and to assess the acceptance rate of interventions by providers.

**Methods:** This study was an IRB exempt single center prospective study including patients admitted between October 1st to December 31st 2020. Hyperglycemic patients were identified through a health system approved reporting tool. Monthly hyperglycemia rates were generated from a health system implemented diabetes dashboard. To identify risk factors for hyperglycemia, non-hyperglycemic patients were retrospectively collected as a control cohort. Patients were included if they had a diagnosis of type 2 diabetes, point of care blood glucose readings, and age greater than 18 years. Patients were excluded if they were admitted to an intensive care unit.

**Results:** Pending

**Conclusion:** Pending

TWICE VS THRICE DAILY HEPARIN FOR VENOUS THROMBOEMBOLISM PROPHYLAXIS IN ACUTELY ILL HOSPITALIZED MEDICAL PATIENTS

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**Background:** Unfractionated heparin remains one of the preferred options for venous thromboembolism (VTE) prophylaxis due to benign side effect profile and low cost. There is no definite guidance on frequency of dosing. Purpose of this study was to access impact of twice (BID) versus thrice (TID) dosing in hospitalized patients in Mercy Hospital of Buffalo.

**Objectives:** Primary outcome was incidence of hospital acquired VTE. Secondary outcomes include rates of bleeding and thrombocytopenia. Patients were excluded if they had VTE or bleeding within 90 days, had history of malignancy or currently pregnant.

**Methods:** This was a single center retrospective chart review which analyzed patients who received heparin at the dose of 5000 units BID or TID between July and December of 2019 (n=4769).

**Results:** Symptomatic VTE resulted in 2 (5.6%) of the patients in BID group(n=36) and in 0 (0%) in TID group(n=36) (p>0.9999). No major bleeding was observed in either group. Platelets drop to <100,000 was observed in 4(11.1%) of the patients in BID group and in 2(4.3%) in TID group (p=0.3946). Platelets drop to <50,000 was observed in 1(2.8%) of the patients in BID group and in 1(2.2%) in TID group (p=0.3946).

**Conclusion:** Results have shown that there is no difference in BID versus TID dosing in terms of occurrence of VTE, major bleeding and thrombocytopenia.

ASSESSMENT OF OPIOID USE BEFORE AND AFTER IMPLEMENTATION OF MULTIMODAL ANALGESIA IN POST-OPERATIVE UROLOGY PATIENTS AND THE IMPACT OF PHARMACY PAIN STEWARDSHIP

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**Background:** Multimodal analgesia is the provision of multiple medications with different mechanisms of action in order to achieve a synergistic analgesic effect. This method of pain management utilizes around the clock medications such as acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs) and topical local anesthetics. Multimodal analgesia offers a way to assist in pain management while reducing the incidence of adverse effects associated with opioids and thereby enhancing patient recovery.

**Objective:** To improve pain management while concurrently reducing opioid use by implementing multimodal analgesia in patients undergoing robotic urologic surgeries.

**Methods:** This was a single-center intervention study consisting of both a retrospective and a concurrent phase with a convenience sample of 50 patients chosen for each group. The first phase is a retrospective review and uses data prior to the initiation of a pharmacist driven multimodal analgesia protocol in post-operative urology patients. The second phase was a concurrent review of the interventions made after the initiation of the protocol.

**Results:** Implementation of a multimodal analgesia regimen in postoperative urologic surgery patients resulted in a 49.3% decrease in milligrams of oral morphine equivalents received while inpatient. There was a total of 72 interventions made by the pharmacist after the implementation of the protocol which resulted in a rate of 1.44 interventions per patient.

**Conclusions:** Implementation of a pharmacy driven automatic interchange protocol to initiate multimodal analgesia in postoperative urologic patients led to a decrease in the oral morphine equivalents used.

EFFICACY AND SAFETY OF DOCUSATE AS A STOOL SOFTENER IN PEDIATRIC PATIENTS.

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**Background:** Constipation is a complication that occurs commonly in hospitalized pediatric patients. For years, docusate was considered first-line therapy for the management of constipation in the pediatric population, due to its fast onset of action, and tolerability. In recent years, polyethylene glycol 3350 (PEG-3350) became available and is now also commonly used in pediatric patients.

**Objectives:** The primary objective is to assess the efficacy and safety of oral docusate. Secondary objectives are to compare the efficacy and safety of oral docusate and PEG-3350.

**Methods:** This is a retrospective study that includes children between the ages of 1 month-18 years who received oral docusate or PEG-3350. We evaluated the number of dosages administered, times and frequency of administration, patient’s tolerance of the agent(s), time from administration of the first dose to first bowel movement, frequency and quality of bowel movements per 24-hour periods, changes of bowel sounds and bowel exams, adverse effects to docusate and PEG-3350, and any required pharmacological escalation of therapy.

**Results:** 27 patients who received oral docusate were included in this study. Of the 27 patients, 5 had a reported bowel movement. Of these 5 patients, 4/5 stooled within 24 hours while 1/5 stooled within 72 hours. Only 1/5 patients reported having loose stools. All patients who received oral docusate tolerated their dose. Data collection on PEG3350 is ongoing.

**Conclusions:** Preliminary results showed that oral docusate is safe and tolerable. A larger sample size will help further evaluate the safety and efficacy of oral docusate and thus, data collection is currently ongoing.

CHARACTERIZATION OF UNFRACTIONATED HEPARIN MONITORING PRACTICES IN PATIENTS WITH RECENT ORAL FACTOR Xa INHIBITOR EXPOSURE: A NATIONAL CROSS-SECTIONAL SURVEY

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**Background**: With growing use of direct oral anticoagulants (DOACs), it is increasingly important to determine an optimal transition plan between these therapies and unfractionated heparin (UFH) infusions upon or during hospital admissions. Many institutions utilize UFH-anti-factor Xa (AFXa) levels to monitor and adjust UFH infusions. Oral factor-Xa inhibitors such as apixaban and rivaroxaban interfere with and may cause elevated UFH-AFXa levels. This interaction limits the ability to accurately monitor the effects of UFH when utilizing UFH-AFXa levels, and may lead to unnecessary delays or interruptions in UFH therapy. Conversely, there is concern for increased bleeding risk in patients receiving heparinoid medications in the setting of elevated UFH-AFXa levels due to recent factor-Xa inhibitor use. Given the lack of guidance for monitoring UFH therapy and interpreting elevated UFH-AFXa levels during this transition period, it is unclear how institutions are currently handling this situation.

**Objective**: Characterize monitoring practices among United States (US)-based academic medical centers when transitioning patients from oral factor-Xa inhibitors (apixaban, rivaroxaban) to UFH infusion therapy and to assess pharmacist impression of its clinical significance and the effectiveness of their institutional approach.

**Methods**: This is a national, cross-sectional, 37-item electronic survey distributed to academic medical centers within the Vizient University Health System Consortium Pharmacy Network.

**Results**: The response rate for this survey is 10.3% (13/126). Participant responses and data analysis is ongoing and a full compilation of the results will be presented at the Residency Research and Practice Forum.

**Conclusions**: Data collection is in process and final results are pending.

**PILOT STUDY: PHARMACY-DRIVEN TRANSITIONS OF CARE PROGRAM IN A COMMUNITY HOSPITAL WITH A FOCUS ON MEDICATION RECONCILIATIONS**

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**Introduction:** A pharmacist’s role throughout transitions of care involves reconciling patient’s medications, providing discharge counseling, and ensuring a continuum of care post-discharge. Part of a patient’s initial workup is to reconcile patient’s home medications. Medication reconciliations are obtained on admission to ensure the continuum of care and correct any underlying problems caused by medications. Currently, at our hospital, there is no existing transitions of care program.

**Objective:** The primary objective will measure the value of a transitions of care program in a community hospital. The following data will highlight the gaps in the transitions of care process in our hospital.

**Methods:** This study has been designed to focus on the patients’ admission process with respect to medication reconciliations. Pharmacist interventions will be quantified by the following endpoints for each medication reconciliation in all eligible patients: additions, modifications, and deletions to therapy (i.e. disease-states without treatment, medications prescribed without an indication, and duplicate therapy).

**Results: *in progress***

**Conclusion: *in progress***

IDENTIFYING PRESCRIBING PATTERNS OF DIABETES MEDICATIONS AMONG PHARMACISTS AND PRIMARY CARE PROVIDERS: A FOCUS ON GLP-1 RECEPTOR AGONISTS AND SGLT-2 INHIBITORS

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**Background:** Uncontrolled type 2 diabetes mellitus (T2DM) can lead to microvascular and macrovascular complications including atherosclerotic cardiovascular disease (ASCVD), heart failure, and diabetic kidney disease. Recent evidence has shown that glucagon like peptide-1 receptor agonists (GLP-1 RA) and sodium glucose transporter-2 (SGLT-2) inhibitors have beneficial effects in T2DM patients with ASCVD, chronic kidney disease (CKD), and heart failure with reduced ejection fraction (HFrEF). This has prompted a change in prescribing guidelines, which now indicate that these agents should now be considered irrespective of current hemoglobin A1c. With these updated guidelines, evaluation of the current prescribing patterns at our adult medicine clinic is warranted.

**Objective:** The primary outcome is to quantify the number of patients prescribed a GLP-1 RA or SGLT-2 inhibitor for T2DM based on cardiovascular and renal comorbidities. Secondary outcomes will include quantifying GLP-1 RA or SGLT-2 inhibitor use in comorbid conditions by pharmacists versus primary care providers (PCP) alone, patients with compelling reasons against use of these agents, and patients using these agents for primary versus secondary prevention of ASCVD.

**Methods:** This is a retrospective, single-center, chart review of adult medicine patients with T2DM followed by pharmacists or their PCP alone from December 1, 2019 through February 29, 2020. Patients on dialysis, followed by endocrinology, with type 1 diabetes, or who are pregnant are excluded. This project received exemption from the Upstate University Hospital Institutional Review Board. Data will be presented using descriptive and inferential statistics.

**Results:** Pending

**Conclusions:** Pending

EXPERIENCE WITH POST-OPERATIVE CUSTOMIZED FLUIDS IN PEDIATRIC CARDIAC PATIENTS

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**Background:** Postoperatively, pediatric cardiac patients receive commercially available intravenous fluids with fixed electrolyte concentrations and limited caloric content. Goal glucose infusion rates (GIR) of 6-8 mg/kg/min for patients <5kg and 4-6 mg/kg/min for patients >5kg are not accomplished with commercial fluids in these fluid restricted patients. Customized nutrition fluids address the limitations of commercially available fluid management.

**Objective:** The study objective is to describe our experience with customized fluids in pediatric cardiac surgery patients.

**Methods:** A retrospective review of pediatric cardiac surgical patients who weighed <10 kg and were admitted between January 2002 to May 2009 and January 2018 to July 2020 was conducted. Ethics committee and institutional review board approved the study. All subject’s informed consents were obtained. Data collected during post-operative days (POD) 1-5 included patient demographics, description of fluid, electrolyte supplementation, diuretic use, laboratory values, and post-operative complications. Patients were divided into 2 weight groups, ≤ 5 kg and > 5 kg. Statistics were descriptive.

**Results:** The analysis included 198 patients. For ≤ 5 kg, the average daily fluids and GIR were 3.57 mL/kg/hr and 5.55 mg/kg/min respectively. For > 5 kg, the average daily fluids and GIR were 3.03 mL/kg/hr and 4.19 mg/kg/min respectively. Potassium was supplemented more often than calcium and glucose.

**Conclusions:**  Customized cardiac fluids met the goal GIR > 5kg patients but not the < 5 kg patients. Despite the customized fluids, there was still a high number of supplements given.

THE EFFECT OF PHENOBARBITAL IN ALCOHOL WITHDRAWAL PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT

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**Background:** Acute alcohol withdrawal is precipitated by cessation/reduction of alcohol intake after repeated prolonged usage. Benzodiazepines are generally considered as the standard of care for management of alcohol withdrawal symptoms and prevention of seizures. Phenobarbital presents itself as a potential alternative to benzodiazepine therapies. Available literature suggests that phenobarbital may serve as a clinically safe and cost-effective alternative to benzodiazepine therapies.

**Objective:** To assess phenobarbital use in intensive care unit (ICU) patients admitted with acute alcohol withdrawal. The hypothesis of this study os that the use of phenobarbital in patients admitted to the ICU with alcohol withdrawal will decrease lengths of ICU stay.

**Methods:** This was a single center retrospective chart review to determine how prescribing of phenobarbital in patients with acute alcohol withdrawal affects hospital stay. All patients admitted to the ICU with a diagnosis of acute alcohol withdrawal during this period were included, data was then analyzed to characterize the population and to further to assess both the primary and secondary endpoints in patients treated with phenobarbital versus standard therapy (benzodiazepines).

**Results:** A total of 20 patients were included in the phenobarbital group, and 20 patients were in the standard therapy group. For our primary outcome, length of ICU stay for the phenobarbital group was 10.2 ± 5.6 days compared to 7.2 ± 5.3 days in the standard therapy group (p=0.0849).

**Conclusions:** Further research is needed to better evaluate use of phenobarbital for the treatment of acute alcohol withdrawal implemented earlier in course of withdrawal.

AN EVALUATION OF WARFARIN FAILURE FOR THE TREATMENT OF LEFT VENTRICULAR THROMBUS

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**Background:** Left ventricular thrombus (LVT) is a frequent complication in patients with acute myocardial infarction or dilated cardiomyopathy. Available guidelines offer weak recommendations for warfarin use, while offering no recommendations for direct oral anticoagulants (DOACs).

**Objective:** The objective of this study was to evaluate warfarin failure for the treatment of LVT.

**Methods:** This was a retrospective study conducted at The Mount Sinai Health System from January 1, 2016 to January 1, 2020 in adult patients taking warfarin for the treatment of LVT secondary to an acute myocardial infarction or cardiomyopathy. Endpoints included an evaluation of warfarin failure and identification of prognostic factors with treatment failure. This study was approved by the institutional review board of The Mount Sinai School of Medicine.

**Results:**

There were 72 patients included in the study, and 52 patients (72%) demonstrated warfarin failure due to a lack of LVT resolution at 3 months, systemic embolization, or change in anticoagulation therapy. For time to treatment failure, being an active smoker [HR: 1.79; 95% CI: 1.23 – 2.60; p=0.002] and being on a single antiplatelet therapy [HR: 0.48; 95% CI: 0.25 – 0.94; p=0.03] were prognostic factors of warfarin therapy failure. Four patients had major bleeding events secondary to warfarin therapy and required medical intervention.

**Conclusion:** Warfarin failure is common in patients on therapy for LVT treatment. Active smokers were identified as more likely to have a poor treatment outcome, and may need more regular follow-up or considered for alternative therapy.

IMPACT OF RX ANTICOAGULATION SCORING TOOL ON ANTICOAGULATION MONITORING IN AN INPATIENT SETTING

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**Background:** Rx Anticoagulation scoring tool is a built-in instrument in an electronic medical record system, Epic, that identifies problem anticoagulation orders that may warrant further review and the need for intervention based on various pre-specified criteria. The score is updated in Epic in real time. This tool may offer advantages in monitoring the anticoagulation therapy for the patients in a real time, however, it was not operationalized at Mount Sinai Brooklyn.

**Objective:** To evaluate the accuracy and reliability of the RX anticoagulation tool in managing anticoagulation therapy for inpatient use and to capture the impact of the tool on patient care.

**Methods:** A single center retrospective daily chart review of all patients identified by the scoring tool in electronic medical record, Epic. The medications that are captured by the tool include enoxaparin, warfarin, heparin, apixaban, rivaroxaban, dabigatran, argatroban, bivalirudin, and fondaparinux. The trigger list includes the following parameters: Hgb decrease by > 2g/dL, SCr > 1.5 mg/dL, CrCl <30 mL/min, aPTT >110 sec, aPTT > 90 sec, platelets < 50 × 109/L, INR > 3.8, Anti Xa level > 1.2 IU/mL. Data would include indication for use, dose, frequency, route, patient Covid-19 status, SCr, INR, aPTT, and d-dimer values. The appropriateness of use would be defined according to the most recent clinical treatment guidelines. All flagged anticoagulation orders for adult patients captured by this tool within 3 months frame would be included in this review.

**Results:** In progress.

**Conclusion:** In progress.

EFFECTIVENESS OF A PHARMACY RESIDENT DRIVEN CULTURE FOLLOW -UP PROGRAM IN AN EMERGENCY DEPARTMENT

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**Background**: Pharmacists working in the emergency department (ED) have the ability to impact patient care with culture follow-up after ED discharge. Prior to October 2017, our institution had an ED culture follow-up program run by nurses and ED providers using paper documentation. This was replaced by an electronic, Monday to Friday (M-F) ED pharmacist led program that demonstrated improved time to culture review.

**Objective**: Assess the seven day per week pharmacy resident driven (seven-day group) culture program for the outcome of time elapsed to culture review from the time of culture resulted (TE).

**Methods**: This study has been approved by the institutional review board. Retrospective chart review was performed on the seven-day group. The nursing-led group and the pharmacist M-F group have existing data for analysis. The seven-day group included cultures from October 17, 2019 to March 18, 2020 for patients that have been discharged from the ED.

**Results**: A total of 396 patients were included for chart review. The average TE was 15.4 hours in the seven-day group. This led to decreased TE, compared to the nursing-led group (35.5 hours, P<0.001) and the pharmacist M-F group (20.9 hours, P<0.006). Overall, in the seven-day group 15.8 percent of patients had their prescription sent by a pharmacist. An antibiotic change intervention was performed on 39/60 (65%) patients.

**Conclusions**:  The seven-day group resulted in quicker time to culture review compared to previous models. This further reinforces the value of the ED pharmacist and pharmacy residents in the culture review process.

EFFECTS OF NASAL MRSA PCR ON DURATION OF VANCOMYCIN THERAPY IN PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA

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**Background**: The Infectious Disease Society of America Guidelines for Diagnosis and Treatment of Adults with Community Acquired Pneumonia (CAP) recommend the addition of empiric vancomycin therapy only in patients with defined risk factors for methicillin-resistant *Staphylococcus aureus* (MRSA). Variabilities in prescribing practice exist and can result in inappropriate vancomycin initiation and/or lack of subsequent de-escalation. The CAP guidelines advocate for the use of a nasal MRSA polymerase chain reaction (PCR) to guide prompt de-escalation of vancomycin therapy. This study will evaluate the effect of the nasal MRSA PCR on the duration of vancomycin therapy in patients with CAP.

**Objective**: The primary outcome was duration of vancomycin therapy. Secondary outcomes included compliance with the CAP guidelines regarding initiation of vancomycin and utilization of blood/sputum cultures, time to discontinuation of vancomycin therapy from negative nasal PCR result, rates of acute kidney injury, length of stay and readmission within 30 days.

**Methods**: This is an institutional review board approved, retrospective, single-center chart review including charts from January 1, 2019 through December 31, 2019. Patients were included if they were >18 years old, had a diagnosis of community acquired pneumonia and were on vancomycin for at least 24 hours. Patients were excluded if they had a concomitant secondary infection during the same admission, on dialysis or had acute kidney injury (AKI) at the time of vancomycin initiation, definitive MRSA infection as diagnosed by blood and/or sputum culture or if vancomycin was utilized as the sole agent for gram-positive coverage.

**Results**: In progress

**Conclusion**: In progress

**EFFECT OF DEXMEDETOMIDINE ON THE INCIDENCE AND DURATION OF VASOSPASM IN PATIENTS WITH ANEURYSMAL SUBARACHNOID HEMORRHAGE (ASAH)**

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**Background:** Aneurysmal subarachnoid hemorrhage (aSAH) is a health burden that predisposes patients to cerebral ischemia, due to the vasospasms that may occur. Vasospasms are the narrowing of the cerebral arteries, which poses a risk of potentiating neurological deficits. Recent animal studies have suggested that dexmedetomidine may reduce the incidence of vasospasm or potentially improve neurologic outcomes in patients with aSAH. However, literature is limited in assessing the effect of dexmedetomidine on the incidence of vasospasm in humans.

**Objective:** The primary objective is to determine if exposure to dexmedetomidine reduces the incidence, persistence or intensity of vasospasm. Secondary endpoints include assessing the rate of adverse reactions from dexmedetomidine in patients with aSAH.

**Methods:** A retrospective cohort of adult patients, with documented aSAH by computerized tomography (CTA), who have received dexmedetomidine for sedation from January 2014 through July 2020, was completed. All clinical research represented was approved by the institutional review board.

**Results:** A total of 107 patients were reviewed. Seventy (65%) of the patients included had documented vasospasm during their admission. Of the patients with vasospasm, 38 (54%) patients had persistent vasospasm. Additionally, 25 patients (23%) had adverse reactions from dexmedetomidine, with four patients requiring vasopressor support.

**Conclusions:** Based on the data, dexmedetomidine usage at Albany Medical Center, in aSAH, is associated with higher vasospasm rates when compared to the annual incidence rate of 12-30%. Dexmedetomidine has also been shown to often cause adverse reactions, such as decreased systolic blood pressure, heart rate, and mean arterial pressure, which must be considered.

High-dose methotrexate dosing strategy in primary central nervous system lymphoma

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**Background:** Primary Central Nervous System Lymphoma (PCNSL) is a rare type of extranodal non-Hodgkin lymphoma, primarily restricted to the brain, eyes and cerebrospinal fluid, without evidence of systemic spread. The backbone induction therapy for PCNSL is chemoimmunotherapy, consisting of high dose methotrexate (HD-MTX) and rituximab, which can be combined with other cytotoxic agents. The optimal dose of HD-MTX remains unclear, as doses between 1 g/m2 and 8 g/m2 have shown to be effective. The British Journal of Haematology guideline emphasizes the importance of a rapid infusion (2-4 hours) of HD-MTX at doses of at least 3 g/m2 to reach therapeutic target concentrations in the cerebrospinal fluid. At our institution, our standard of care for all de-novo PCNSL patients is HD-MTX dosed at less than 8 g/m2, in combination with rituximab.

**Objective:** The objective of this study is to evaluate tumor response and safety of our institutional dosing of HD-MTX (dosed at less than 8 g/m2), in combination with rituximab, in PCNSL patients.

**Methods:** We performed a retrospective, Institutional Review Board approved, observational study at NYU Langone Health of all patients ≥18 years old who were treated with HD-MTX dosed at less than 8 g/m2, in combination with rituximab for newly diagnosed PCNSL between April 1, 2014 and October 1, 2020. Patients’ demographics, comorbidities, radiology data, laboratory data and details of treatment course were collected based on the retrospective review of electronic health records. Data was evaluated using descriptive statistics.

**Results:** 27 patients were included.Currently in progress of data and statistical analysis.

**Conclusions:** In progress.

IMPACT OF PROVIDER EDUCATION INITIATIVE ON OPIOID USAGE AND PRESCRIBING PATTERNS IN POSTOPERATIVE PATIENTS

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**Purpose**: Opioid prescribing in the United States has steadily increased since 2006 and led to an opioid overdose epidemic that has caused significant mortality throughout the nation. Many efforts to reduce opioid use are focused on the outpatient setting. Therefore, the purpose of this study is to examine post- surgical opioid prescribing patterns before and after the implementation of an education initiative in a community teaching hospital.

**Objective:** The primary objective of this study is to examine the number of opioids used in post-operative patients, both opioid-naïve and experienced, in the form of oral morphine milligram equivalents (OME). Secondary outcomes include days supply and quantity of opiates prescribed on discharge, and utilization of multimodal pain relief. Patients transferred to the ICU during their stay, or with a documented history of opioid abuse were excluded from this study

**Methods**: The Catholic Health institutional review board approved this study. This is a retrospective, single- center, pre- post observational cohort study to assess the impact of an educational handout to the surgical service. Patients will be matched for opioid tolerance to the pre- intervention cohort.

**Results:**

Pending

**Conclusions**:

Pending

Evaluation of the Transition from Parenteral Anticoagulation to Apixaban or Rivaroxaban in Patients with Acute Venous Thromboembolism

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**Background:** Apixaban and rivaroxaban are increasingly utilized for the treatment of venous thromboembolism (VTE) with recommended 7-day and 21-day higher lead-in doses, respectively, before transitioning to maintenance dosing. Patients presenting to the hospital with an acute VTE often receive parenteral anticoagulation prior to transitioning to oral anticoagulation. However, it remains unknown if this 7 and 21 day regimen is clinically warranted in all patients, or if these days can be subtracted from initial parenteral anticoagulation. Real world practices are variable, with some clinicians including the lead-in dose despite adequate parenteral anticoagulation up-front, and other subtracting days of parenteral anticoagulation received from the lead-in.

**Objectives:**

To describe real-world prescribing patterns and evaluate clinical outcomes including recurrent thrombosis and bleeding rates in patients transitioned from parenteral anticoagulation to apixaban or rivaroxaban for the treatment of acute VTE.

**Study Design:**

This is a retrospective, Institutional Review Board approved, observational study at NYU Langone Health of patients 18 years or older who were treated with rivaroxaban or apixaban for acute symptomatic proximal deep vein thrombosis (DVT) or PE (with or without DVT) that received parenteral anticoagulation with either enoxaparin or heparin for at least 24 hours prior to transition to oral anticoagulation. Patients on anticoagulation prior to admission were excluded, as well as those with heparin-induced thrombocytopenia, anti-phospholipid syndrome, or chronic thromboembolic disease. The primary outcome is tolerability of current practices, defined as a composite of recurrent VTE and major bleeding events.

**Results:** In progress.

**Conclusions:** In progress.

EFFECT AND TOLERABILITY OF AMIODARONE FOR ATRIAL FIBRILLATION PROPHYLAXIS POST LOBECTOMY

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**Background:**

Atrial fibrillation (AF) is a common postoperative complication of major pulmonary resection. Amiodarone has been shown to reduce the incidence of post-operative AF (POAF) in patients undergoing pulmonary resection via open thoracotomy, however, limited data exists for patients undergoing video-assisted thorascopic surgery (VATS) resection.

**Objective:**

The primary objective was to compare rates of POAF in patients undergoing VATS lobectomy who received amiodarone versus no treatment. Secondary outcomes included the incidence of acute drug-related side effects including bradycardia, hypotension, and QTc prolongation.

**Methods:**

Retrospective, single-center, chart review including adult patients who underwent VATS lobectomy from 01/2018 – 12/2020. Patients with a pacemaker, history of AF or atrial flutter, HR <60 or systolic blood pressure <90 prior to lobectomy, or current use of class I/III antiarrhythmics were excluded. Patients were matched in a 1:1 ratio based on CHADS2VASC risk score.

**Results:**

POAF occurred more frequently in the amiodarone group versus the non-amiodarone group, but was not statistically significant (n=10 [15.4%] vs. n=5 (7.7%); p = 0.272). Rates of post-operative bradycardia, hypotension and QTc prolongation were also similar between groups.

**Conclusions:**

Prophylactic amiodarone did not decrease rates POAF in patients undergoing VATS lobectomy in our cohort. Future studies should attempt to identify potential subgroups who may benefit from amiodarone prophylaxis when undergoing VATS pulmonary resection.

EVALUATION OF STANDARDIZED NEONATAL EMPIRIC VANCOMYCIN DOSING IN NEONATAL SEPSIS: A RETROSPECTIVE STUDY OF CURRENT VANCOMYCIN DOSING PRACTICES

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**Background**: Neonatal differences in PK/PD parameters make it difficult to follow standard dosing regimens. Antimicrobial stewardship programs call for vancomycin trough and AUC/MIC target optimization in order to prevent antibiotic resistance and to decrease toxicity.

**Objective**: The objective is to evaluate the efficacy of an empiric NeoFax-based vancomycin dosing regimen in terms of achieving the appropriate therapeutic target levels in the neonatal population.

**Methods**: This study was a retrospective chart review of initial empiric vancomycin regimens received by patients in a Level III NICU from January 2018 until August 2020. Total number of vancomycin doses evaluated was n=182. The goal vancomycin trough was between 10-20 mcg/mL. The AUC/MIC ratio was calculated using the Le et al. method. An AUC/MIC ratio of 400-600 was evaluated for achieving safe and effective dosing regimens in accordance with guidelines for treatment of MRSA infections.

**Results**: A total of 65 data points were included. The NeoFax-based vancomycin dosing protocol achieved troughs of 10-20 mcg/mL 19/65 (29.2%) of the time. This protocol achieved the goal AUC/MIC range of 400-600 30/65 (46.2%) of the time after the initial dose. A therapeutic AUC/MIC above 400 was achieved in 45/65 (69.2%) of the evaluated points. None of the patients had a serum creatinine above 1.5 g/dL or had supertherapeutic levels or drug toxicities during the study period.

**Conclusions**: The NeoFax-based empiric vancomycin dosing protocol was not effective at achieving therapeutic troughs in the majority of patients. The ideal AUC/MIC of 400-600 was achieved by 46.2% of the patients, suggesting the protocol can be improved.

EVALUATING ANTI-XA LEVELS IN PATIENTS WITH PULMONARY EMBOLISM DURING THE FIRST 48 HOURS OF ANTICOAGUATION WITH UNFRACTIONATED HEPARIN

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**Background**: The mainstay of acute symptomatic pulmonary embolism (PE) is anticoagulation, with either a low molecular weight heparin (LMWH) or intravenous (IV) unfractionated heparin (UFH). At NYU Langone Health, the recommended UFH dosing strategy for the treatment of a PE consists of a bolus dose of 80 units/kilogram IV followed by a continuous infusion of 18 unit/kilogram/hour, titrated to an anti-Xa goal of 0.3-0.7 U/ml. We hypothesize that dosing and monitoring UFH with an anti-Xa protocol will result in therapeutic anticoagulation target attainment within 24 hours, which may impact overall survival from PE at 3 months.

**Objective**: The objective was to evaluate the time to therapeutic anti-Xa utilizing a standardized UFH nurse-titrated protocol. The primary endpoint was time to a therapeutic anti-Xa level. Secondary outcomes include percentage of time in therapeutic range within 48 hours, recurrent thrombosis, mortality and bleeding events within 3 months.

**Methods**: This is a retrospective, institutional review board approved, observational study of patients treated with IV UFH for PE between 2016 – 2020. Patients were excluded if they were younger than 18 years of age, did not have at least 2 anti-Xa levels monitored with UFH for PE, or received a LMWH within 12 hours prior, direct oral anticoagulant within 48 hours prior, or alteplase within 48 hours prior or after UFH initiation. Electronic medical records were reviewed to collect baseline demographics, past medical history, characteristics of the thrombus, and doses and titrations of UFH.

**Results**: Pending statistical analysis

**Conclusion**: Pending statistical analysis

IMPLEMENTING A TAKE-HOME NALOXONE-KIT PROGRAM IN THE EMERGENCY DEPARTMENT OF AN ACADEMIC MEDICAL CENTER

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**Background:** Opioid related overdose (ORO) is one of the leading causes of injury-related deaths in the United States. Providing naloxone to patients at risk of ORO can be life-saving. Emergency departments (ED) provide access for patients at high risk of ORO and are ideal settings to provide naloxone-kits to reduce morbidity and mortality in this patient population.

**Objective**: The purpose of this study was to implement a take-home naloxone-kit (THN) program at NYU Langone Hospital—Long Island’s ED and to assess confidence levels of pharmacists related to naloxone counseling.

**Methods:** Naloxone-kits were ordered from the New York State Department of Health at no cost. Anonymous surveys were administered to 14 pharmacists before and after standardized naloxone training (NT) to assess confidence levels in identifying signs and symptoms of opioid overdose, providing naloxone counseling to a patient, and ability to give intranasal naloxone to someone using a 5-point Likert scale. Patients who met criteria to receive a naloxone kit such as ORO were prescribed naloxone-kits and provided counseling at discharge by pharmacists.

**Results:** More than half of the pharmacists have not had previous NT before. In general, after NT, majority of the pharmacists reported as ‘somewhat confident”, “confident”, or “extremely confident” in their ability to identify signs and symptoms of opioid overdose, provide training to a patient or close contact on how to use intranasal naloxone, and ability to give intranasal naloxone to someone.

**Conclusions:** THN programs can be implemented successfully in EDs to increase access to naloxone, awareness of and prevent ORO harm.

RISK FACTORS FOR CYTOMEGALOVIRUS IN HIGH RISK (D+R-) LIVER TRANSPLANT RECIPIENTS

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**Background**: Cytomegalovirus (CMV) is a ubiquitous infection that infects 50-100% of people. In immunocompromised transplant recipients, CMV causes increased morbidity and mortality. Therefore, prevention of CMV disease is of great importance. The most commonly used medication for CMV prevention in liver transplant recipients is valganciclovir. Our site utilizes a universal prophylaxis approach where all recipients receive valganciclovir for 3 months with the option to extend to 6 months. In order to know if there is opportunity to improve our prevention strategy, this study aims to identify risk factors for CMV and evaluate current outcomes in the CMV high risk population.

**Objective**: The primary objective of this study is to identify risk factors for CMV in high risk liver transplant recipients. Secondary outcomes include, biopsy proven acute rejection, 1 year patient and graft survival, incidence of tissue invasive CMV disease, viremia characteristics including time from transplant and peak PCR, duration of prophylaxis, and documented side effects of valganciclovir.

**Methods**: This is a single-center, retrospective chart review of adult CMV high risk liver transplant recipients who were admitted between April 2014 and December 2019. Exclusion criteria for this study includes: multivisceral transplant, index hospitalization > 3 months, death within 3 months after transplant, enrollment in a clinical trial for CMV prevention, CMV viremia pre-transplant, and indeterminate donor or recipient CMV IgG status.

**Results**: In progress, pending Institutional Review Board approval

**Conclusion**: In progress