**Association between *SLCO1B1* functional status and statin efficacy**

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**UAN:** 0048-0000-25-006-L01-P

**Learning Objectives:**

1. Explain the effect of *SLCO1B1* variability on statin-associated musculoskeletal symptoms (SAMS)
2. Identify the effect of *SLCO1B1* variability on statin efficacy for LDL-C reduction

**Purpose:**

The purpose of this study is to evaluate the impact of solute carrier organic anion transporter family member 1B1 (*SLCO1B1*) function on the lipid-lowering efficacy of statins. While *SLCO1B1* variability is well-documented in relation to statin-associated musculoskeletal symptoms (SAMS), its role in low density lipoprotein cholesterol (LDL-C) reduction remains understudied. Given *SLCO1B1*’s role in hepatic statin uptake, decreased function may reduce statin efficacy. Understanding this relationship could enhance personalized lipid-lowering therapy, optimizing treatment strategies for patients with high cardiovascular risk. If *SLCO1B1* function predicts reduced statin efficacy, it may serve as a biomarker to guide alternative therapies, such as proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors, ultimately improving patient outcomes and treatment coverage.

**Methods:**

This was a single-center, retrospective cohort study evaluating adult patients on statin therapy with available pharmacogenomic test results for the correlation of *SLCO1B1* functional status and statin efficacy. Patients who received pharmacogenomic testing for a non-statin-related indication were included. The index period was defined as the time period between baseline LDL-C in the 1 year prior to starting statin and follow-up LDL-C at least 6 weeks after initiation of statin. The primary endpoint was the change in LDL-C. The secondary endpoints were occurrence of SAMS and statin adherence. Data analysis will be conducted using descriptive and inferential statistics using SPSS.

**Results:**

Final results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Final conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Evaluating Opioid Prescribing Practices at Discharge in Cesarean Section Patients**

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**UAN:** 0048-0000-25-007-L08-P

**Learning Objectives**:

1. Discuss the background of opioid prescribing post-cesarean section (C-section)​
2. Review current literature around opioid prescribing in post-operative C-section patients​
3. Explain OhioHealth’s post-surgical opioid prescribing guidelines for opioid-naïve C-section patients​
4. Identify areas for further research or improvement in opioid prescribing practices​

**Purpose:**

The reliance on opioids for postoperative pain management in cesarean section (C-section) patients raises concerns about opioid overprescribing, potential adverse drug events, and a risk of opioid dependency. The focus has now shifted to medication regimens that decrease opioid use while providing adequate pain control. The study’s intent is to evaluate system wide current opioid prescribing practices for C-section patients at discharge and focusing on adherence to OhioHealth’s post-surgical opioid prescribing guideline.

**Methods**:

A retrospective chart review assessing opioid prescribing practices and adherence to an institutional guideline in discharged opioid-naïve C-section patients from a not-for-profit community hospital. The guideline was approved by surgical CGC in Feb 2020, and C-section falls under level 2 which includes discharged opioid medication recommendations of oxycodone 5 mg (0-20 tablets), hydrocodone 5 mg (0-30 tablets), or tramadol 50 mg (0-30 tablets). Data was collected from March 1 to June 1, 2024 using pharmacy-guided data from electronic medical record. The study will include patients who underwent a C-section without any additional surgeries on the same day (e.g., excluding salpingectomy, oophorectomy, and/or hysterectomy) and were discharged within the OhioHealth system. Patients younger than 18 years of age, those with a documented history of opioid use disorder (OUD), or patients already on opioid pain management before the C-section (with a history of outpatient opioid use upon admission medication reconciliation) were excluded.

**Results:**

Of the 1,194 patients included in the analysis, 1,050 (87.96%) received an opioid prescription at discharge, with 871 (82.95%) of these prescriptions adhering to recommended guidelines. The total morphine milligram equivalent (MME) per prescription had a median of 90 (range: 0-480) for providers that are following the guidelines, whereas providers with non-adherent prescriptions had a significantly higher median MME of 210 (range: 28-288, p<0.001).

**Conclusion**:

In conclusion, more education is needed on utilization of the institutional opioid prescribing guideline. The results displayed a pattern of over-prescribing of opioids for post-cesarean surgery, as well as an underutilization of non-opioid pain control methods.

**Comparison of Prothrombin Complex Concentrates for Direct Xa Inhibitor Gastrointestinal Bleeding**

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**UAN:** 0048-0000-25-008-L01-P

**Learning Objectives:**

1. Compare the outcomes of four factor prothrombin complex concentrate (4FPCC) and activated 4FPCC (a4FPCC) for the management of acute direct Xa inhibitor gastrointestinal (GI) bleeding.
2. Assess factors influencing the decision to administer reversal agents for direct Xa inhibitor-related GI bleeding.

**Purpose:**

GI bleeding is the most common site for acute direct Xa inhibitor bleeding. Both 4FPCC and a4FPCC can be used to manage these bleeding events, however comparative data remains limited. Most guidelines advise against routine reversal for GI bleeding unless it is life-threatening. A standardized definition of life-threatening GI bleeding is lacking. This study will compare the safety and efficacy of a4FPCC versus 4FPCC in direct Xa inhibitor-related acute GI bleeding. A secondary objective is to assess the frequency of life-threatening GI bleeding.

**Methods:**

This single-center, IRB-exempt, retrospective cohort study included adult patients who received a4FPCC (August 2016 to July 2019) or 4FPCC (June 2021 to June 2023) for acute direct Xa inhibitor-related GI bleeding. Data collection included laboratory data, evidence of hypoperfusion, blood products, procedural interventions, and evidence of bleeding and thrombosis. The primary efficacy and safety outcomes were hemostatic efficacy (modified ANNEXA-4 criteria) and 30-day thrombosis with possible/probable relationship to reversal using the World Health Organization causality categories. Secondary outcomes include frequency of life-threatening GI bleeding, mortality, and anticoagulation resumption at discharge. For each case, three definitions of life-threatening bleeding were applied. All data extraction was verified. Analysis involved Fisher’s exact test with statistical significance set at p<.05.

**Results:**

A total of 51 patients were included, 17 in the a4FPCC group, and 34 in the 4FPCC group. All data presented are for a4FPCC and 4FPCC, respectively. Most patients were male (64.7%, 52.9%, p=0.53) with median age 78.9±7.9 and 74.1±13.3 years (p=0.18). The majority of patients received apixaban (58.8%, 76.5%, p=0.21) and were taking anticoagulation for stroke prevention in atrial fibrillation. Excellent/good hemostatic efficacy was achieved in 73.3% and 60.6% of patients (p=0.52). Thirty-day thrombosis was 11.1% and 17.4% (p=1). At least one definition of life-threatening bleed was met in 92.2% of patients. The 30-day all-cause mortality was 31.3% and 28.1% (p=1). Anticoagulant was resumed at discharge in 53.8% and 42.3% (p=0.52).

**Conclusions:**

There was no difference in efficacy between a4FPCC and 4FPCC for direct Xa inhibitor acute GI bleeding. Thrombotic events were also not significantly different. Life-threatening bleeding occurred in the majority of patients by one of the applied definitions.

**Balancing Barbiturates: Early Phenobarbital Dosing Strategies for Alcohol Withdrawal Syndrome in Acute Care Settings**

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**UAN:** 0048-0000-25-009-L01-P

**Learning Objectives:**

1. Analyze the impact of phenobarbital loading doses (≤5 mg/kg vs. >5 mg/kg) and cumulative 24-hour dose.
2. Review the literature on phenobarbital dosing strategies for alcohol withdrawal syndrome (AWS) and their use in the emergency department.

**Purpose:**

Alcohol withdrawal syndrome (AWS) can cause seizures and delirium tremens, often requiring intensive care unit (ICU) admission. Benzodiazepines are the standard treatment, but phenobarbital (PHB) offers a longer half-life and dual GABA/NMDA receptor activity. Despite its growing use, the optimal loading dose of PHB remains unknown. This study aimed to compare the safety and efficacy of high- vs low-dose PHB administered in the emergency department (ED) for the management of AWS.

**Methods:**

This multi-center, retrospective cohort study included adult patients with AWS treated at Trinity Health Oakland and Ann Arbor hospitals between July 1, 2022, and January 14, 2025. Patients received their first dose of intravenous PHB in the ED and were subsequently admitted to the ICU. Those receiving ≤ 5 mg/kg in the first 24 hours were in the low-dose group; > 5 mg/kg were in the high-dose group. The primary outcome was ICU length of stay (LOS). Secondary outcomes included hospital LOS, mechanical ventilation, adjunctive therapy use, and patient disposition.

**Results:**

Of 243 patients, 85 met inclusion criteria: low-dose (n=40) and high-dose (n=45) PHB groups. Median 24-hour cumulative PHB dose was 130 mg (IQR: 130-260 mg) in low-dose group and 585 mg (IQR: 390-780 mg) in high-dose (p < 0.05). There was no difference in ICU LOS (3.5 vs. 2.9 days; p = 0.126) or hospital LOS (6.0 vs. 5.5 days; p = 0.546) between low- and high-dose PHB, respectively. Mechanical ventilation rates were similar (25% vs. 16.2%; p = 0.381). Benzodiazepine use was lower in the high-dose group (82.2% vs. 97.5%; p = 0.022), while other adjunctive medication use and discharge disposition did not differ.

**Conclusion:**

Higher PHB loading doses did not significantly reduce ICU LOS compared to lower doses, suggesting no clear benefit in escalating dosing beyond 5 mg/kg. These findings support individualized PHB dosing strategies in AWS management.

**Comparison of Propofol Exposure Between Patients on Titratable Fentanyl Infusions for Analgosedation with an Analgesia-First (CPOT Only Goal) Versus Analgesia-Based (CPOT + RASS Goal)** **Strategy**

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**UAN:** 0048-0000-25-010-L08-P

**Learning Objectives:**

1. Describe PADIS Guideline recommendations for analgosedation in mechanically ventilated patients
2. Discuss propofol exposure and time at RASS goal between analgesia-first and analgesia-based analgosedation strategies

**Purpose:**

Current guidelines for the management of pain and agitation in the ICU recommend analgosedation, defined as either analgesia-first or analgesia-based sedation, in the care of critically ill adults. Analgesia-first sedation involves analgesic (usually an opioid) use before a sedative to reach the sedative goal while analgesia-based sedation involves analgesic use instead of a sedative to reach the sedative goal. A recent guideline focused update highlighted the need for further research on the role of sedatives as part of analgosedation.

**Methods:**

This IRB-approved, multisite, retrospective cohort study compared propofol exposure between patients receiving continuous fentanyl infusions via an analgesia-first or analgesia-based strategy. Included patients were mechanically ventilated adults receiving fentanyl infusions for light analgosedation in the Medical Intensive Care Units within the health system. Patients were excluded if receiving continuous infusion fentanyl for <24 hours, titration goal changed between analgesia-first or analgesia-based strategy ≤4 hours after infusion initiation, receiving concomitant continuous sedative infusions other than propofol, or requiring propofol administration to treat an underlying pathology. Patients were matched based on age and SOFA scores. Secondary outcomes included percent time at goal RASS, percent time at goal CPOT, and incidence of adverse effects. With α=0.05 and β =0.2, 44 patients were needed per group to detect a 50% reduction in propofol exposure between groups.

**Results:**

78 patients were included with 39 matched patients in each group. Data collection and analysis are ongoing. Results will be presented at the Ohio Pharmacy Residency Conference (OPRC).

**Conclusions:**

Results of this study may offer valuable insight comparing the use of the two analgosedation strategies.

**Implementation of a Pharmacist Driven Protocol for A1c Monitoring and Intervention in Patients Taking Atypical Antipsychotics**

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Cathryn Thomas, PharmD, RPh; Lauryl Hanf-Kristufek, PharmD, RPh, BCPS

**UAN:** 0048-0000-25-011-L01-P

**Learning Objectives:**

1. Evaluate patients for appropriate metabolic monitoring on atypical antipsychotics.
2. Identify if pharmacist driven ordering of A1c values and intervention improves monitoring and metabolic side effect management of patients on atypical antipsychotics.

**Purpose:**

Atypical antipsychotics often have metabolic side effects that may negatively affect physical health. Monitoring of glucose, lipids, blood pressure, and weight can help prevent and guide treatment for complications that result from taking atypical antipsychotics. When a patient is admitted, A1c lab testing may not be routinely ordered if it is not related to the problem the patient is hospitalized for. Pharmacists can monitor patients for metabolic side effects, as they review patient charts and medications regularly. With early identification of metabolic side effects, medications can be started to treat conditions like type II diabetes.

**Methods:**

This study has been submitted to the Institutional Review Board, is exempt from IRB approval, and will be conducted at Mercy Health - St. Charles Hospital. The primary outcome of this study is to measure the number of patients on atypical antipsychotics receiving appropriate glucose monitoring. Secondary outcomes include number of A1c lab tests ordered, number of patients requiring glucose-lowering therapy, and number of pharmacist interventions related to management of glucose. This prospective review will include adult patients admitted to Mercy Health - St. Charles Hospital who are taking an atypical antipsychotic medication during the time frame of the study. Pharmacists will perform a chart review for patients, and based on protocol will order appropriate lab tests for glucose monitoring. If indicated, recommendations for glucose-lowering medications will be made to the attending physicians.

**Results:**

Data collection is ongoing and will be presented at the Ohio Pharmacy Residency Conference.

**Conclusion:**

Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Evaluation of Prescription Capture Rate and Revenue Associated with the Implementation of a Heart Failure Ambulatory Pharmacist Position at St. Elizabeth Healthcare**

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Emma Sapp, PharmD, BCACP

**UAN:** 0048-0000-25-012-L04-P

**Learning Objectives:**

1. Recall the current guideline recommendations of guideline-directed medical therapy (GDMT) in heart failure.
2. Explore the impact of the ambulatory care pharmacist on potential revenue and return on investment associated with an increased prescription capture rate.

**Purpose:**

In 2024, a full-time pharmacist in an ambulatory care role within the Advanced Heart Failure Clinic at St. Elizabeth Healthcare was approved. This position was justified using cost projections from sending prescriptions from the HF clinic to St. Elizabeth Healthcare outpatient pharmacies. Medications sent from the Advanced Heart Failure Clinic to these pharmacies are eligible for 340b drug pricing allowing drug cost savings that can be utilized to expand patient access to care and improve patient services. Prior to this position, the capture rate of prescriptions sent to a SEH pharmacy from the HF team was 3%. The new HF pharmacist role is estimated to facilitate an increase in prescriptions sent to SEH pharmacies, and the goal capture rate is 26% of prescriptions sent to SEH pharmacies to offset the cost of the ambulatory pharmacist position. The goal of this cost project is to determine the capture rate of these prescriptions, along with determining the potential revenue associated with this increased capture rate.

**Methods:**

Prescriptions sent by HF prescribers to SEH outpatient pharmacies, including Cancer Care Pharmacy and Medical Village Pharmacy, were included in this study. Data from July 24th, 2024 to April 1st, 2025 was collected to assess the outcomes of this study, since those dates reflect the time since the pharmacist started in this role. The primary outcome was the change in capture rate of prescriptions that are sent to SEH outpatient pharmacies from the Advanced Heart Failure team since implementation of the ambulatory HF pharmacist. The secondary outcome was calculation of return on investment of the addition of the ambulatory HF pharmacist.

**Results:**

Final results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Pharmacist-Led Tobacco Cessation in Patients Undergoing Treatment for Substance Use Disorder**

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**UAN:** 0048-0000-25-013-L01-P

**Learning Objectives:**

1. Describe the relationship between tobacco use and substance use disorders.
2. Identify the role pharmacists have in addressing the care gap for substance use disorder patients.

**Purpose:**

The objective of this study is to evaluate the effectiveness of a pharmacist-led tobacco cessation program on successful tobacco cessation attempts in patients undergoing concurrent substance use disorder (SUD) treatment. SUD and tobacco use are two common disease states that often co-occur. Tobacco use among those using alcohol, marijuana, and other illicit drugs is much more prevalent than the general United States population. Patients with SUD and/or mental health disorders are more likely to die from tobacco-related causes compared with the general population. SUD patients who continue or begin to smoke are also more likely to experience SUD relapse. Addressing tobacco cessation can help manage this secondary addiction and improve the likelihood of sustained sobriety. While both medication assistance therapy (MAT) and tobacco cessation recommendations are currently offered, they are not presently utilized together.

There is data to support both pharmacist-led tobacco cessation services and the benefit and efficacy of tobacco cessation in patients with SUD. However, there has not been data that shows the benefits of a pharmacist-led tobacco cessation service for patients with SUD. These patients are using medication to help with their SUD, and adding medication for tobacco cessation may seem daunting, yet pharmacists are well-equipped to make these recommendations for additional drug therapy.

**Methods:**

Patients in the MAT program will be offered the opportunity to participate in the pharmacist-led tobacco cessation program. This program consists of eight telehealth sessions over seven weeks, where patients will learn strategies to assist in successful tobacco cessation. As part of this program, patients meet with the clinical pharmacist for tobacco cessation aids, which will be prescribed under a collaborative practice agreement. Tobacco cessation rates at 4 months will be compared between patients who did and did not complete the pharmacist-led tobacco cessation program. The secondary outcome is the number of times pharmacists contacted patients.

**Results:**

Results are pending.

**Conclusions:**

The results from this study may help strengthen the role of pharmacists in the treatment of SUD patients with tobacco dependence, with the potential to lead to more accessible care for these patients.

**Determining the Impact of a Pharmacist-Led Diabetes Management Program Utilizing Continuous Glucose Monitors (CGMs) in an Underserved Population**

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Jacquelyn Risner-Kissel, PharmD, AAHIVP; Nathan Luce, PharmD, BCPS, AAHIVP; Alvin Choy, PharmD, AAHIVP; Teagan Vaughn, PharmD, AAHIVP; Phil Pauvlinch, PharmD, AAHIVP; Zuhair Alqahtani;

Bethanne Brown, PharmD, BCACP

**UAN:** 0048-0000-25-014-L04-P

**Learning Objectives:**

1. Describe the relationship between tobacco use and substance use disorders.
2. Identify the role pharmacists have in addressing the care gap for substance use disorder patients.

**Purpose:**

The goal of this institutional review board (IRB) prospective, cohort study is to determine if utilization of a CGM throughout a 3-month pilot, comprehensive pharmacist-led diabetes management program in a vulnerable patient population impacts hemoglobin A1c values.

**Methods:**

This study took place at a federally qualified look-alike health system in Ohio that serves vulnerable patients including those with HIV and the LGBTQ+ community. Inclusion criteria included: age >18 years, diagnosed with Type 2 Diabetes, seen by a provider within the last year, and A1c > 8%.  Exclusion criteria included: pregnancy, use of CGM within the last 6 months, or refusal to participate. Participants received three months of CGM’s at no cost and completed four 30-minute visits with a clinical pharmacist for diabetes education, CGM data review, and medications adjustments. Data was collected from EHR and tracked in excel including demographics, A1c (baseline and three months), glucose management index (GMI), % time CGM active, % time in/above/below range (TIR/TAR/TBR), barriers identified, and pharmacist education based on Association of Diabetes Care and Education Specialists (ADCES7) self-management categories.

**Results:**

Of the 32 completed patients: mean age 47 years (24 to 70), 78% assigned male at birth, 72% white, 22% black, 100% English as primary language, 12% uninsured, 22% government insurance and 66% private insurance, and mean number of diabetes medications at baseline was 2.3.  Primary outcome results include mean baseline and 3 months post-enrollment of A1c of 10.2 mg/dL and 7.7 mg/dL, respectively with mean A1c difference –2.5 mg/dL (p value < 0.0001).  Secondary outcomes from appointments 2, 3, and 4 respectively: GMI: 7.8, 7.4, 7.4; mean time CGM active: 82%, 78%, 81%; mean TIR: 50%, 54%, 66%, and mean TAR: 49%, 41%, 26%. Over 122 appointments, the following was documented: 44 CGM barriers (60% classified as sensor issues), 178 pharmacist interventions, 56 medication adjustments, and 310 educational opportunities based on ADCES7 self-management categories. The three most common categories for education were taking medications, healthy-eating, and monitoring.​

**Conclusions:**

An initial analysis of this on-going prospective, pilot cohort study indicates that patient utilization of CGM technology through a 3-month, comprehensive pharmacist-led diabetes management program in a vulnerable patient population resulted in a statistically significant reduction in hemoglobin A1c.

**Improving Management of Uncontrolled Hypertension Through Intentional Interprofessional Experiential Education**

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**UAN:** 0048-0000-25-015-L01-P

**Learning Objectives:**

1. Review current guideline recommendations regarding hypertension management
2. Describe the impact of clinical inertia on uncontrolled hypertension in the ambulatory care setting and how interprofessional collaboration can address it

**Purpose:**

Uncontrolled hypertension (HTN) causes more cardiac deaths than any other cardiovascular modifiable risk factor. The Corewell Health Schaefer Internal Medicine Clinic is an interprofessional (IP) teaching clinic with an embedded ambulatory care pharmacist providing chronic disease state management. In 2022, 58% of a sample of 334 patients at the clinic had uncontrolled HTN, defined as BP >130/80 mmHg. The objective of this quality improvement initiative is to optimize HTN management through intentional interprofessional experiential education (IIEE).

**Methods:**

This is a retrospective observational study that included patients ≥18 years old with two most recent consecutive BP readings of >130/80 mmHg. The IP team was oriented to a model to deliver HTN care using IIEE. The model involves conducting an initial IP in-person visit, a pharmacy-led telehealth visit within 4 weeks, and a second IP visit within 4-8 weeks. Primary outcomes are to evaluate the following from baseline to time of data analysis: (1) change in mean BP, (2) change in proportion of patients with controlled BP, and (3) the difference in IIEE assessment tool scores from trainees/patients. BP outcomes will be analyzed using paired t-test and chi-squared test. Descriptive statistics will be used to analyze the survey data.

**Results:**

To date, 20 patients completed at least one IP visit. Preliminary data demonstrates that implementation of IIEE resulted in a change in average BP from baseline of 148/81 mmHg to 145/80 mmHg in patients who have at least two documented BP values. The proportion of patients with uncontrolled BP decreased from 89% at baseline to 56% by their second office visit. Surveys demonstrated positive patient and trainee satisfaction with the IP model.

**Conclusions:**

Implementation of IIEE has improved average BP, proportion of patients with controlled BP, and been received positively by patients and trainees.

**Implementation of a Malignant Hematology Pharmacy Specialist in a Community Cancer Center**

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**UAN:** 0048-0000-25-016-L04-P

**Learning Objectives:**

1. Identify common interventions made by pharmacists in the clinic setting that may impact the outcomes of patients.
2. Recognize the patient outcomes impacted by the presence of specialized clinic pharmacists.

**Purpose:**

A clinic pharmacist position was implemented in August 2024 within the malignant hematology clinic at The Yung Family Cancer Center as this specialty is associated with high-cost medications, complex treatment regimens and high acuity patients. Other institutions have demonstrated significant clinical and financial benefit through the implementation of a clinic oncology pharmacist. A study by Lankford et al. showed a $1,508,131 cost avoidance through 547 interventions with oral oncolytics. Another study by Virani et al. revealed a $184,441 cost avoidance through 474 interventions in 39 days. The most common interventions documented in these studies were discontinuation of therapy, supportive care recommendations, drug interactions, and patient education. The purpose of this study is to compare clinical impact and cost savings from the addition of oncology clinic pharmacist positions.

**Methods:**

This retrospective study included patients with hematologic malignancies that received treatment at The Yung Family Cancer Center between August 1, 2024 and February 28, 2025 following the implementation of the specialized clinic pharmacist and results were compared to a historic group between July 1, 2023 to July 31, 2024. The primary outcome of the study was to evaluate the impact of the clinic pharmacist through the number of documented patient interventions and corresponding impact on emergency department (ED) visits, hospitalizations, and patient symptom management calls. Secondary objectives included impact on infusion chair turnaround time, need for additional order clarifications that result in increased infusion chair time, cost avoidance based on documented interventions, patient and colleague satisfaction, and impact on time from diagnosis to treatment initiation.

**Results:**

A total of 76 patients were included in this study. When the post-pharmacist data was extrapolated to a 12-month timeframe, there was a decrease in hospitalizations (26%), ED visits (73%), and symptom calls (77%) compared to the 12-month historical data. A total of 527 interventions were documented in 5 months which resulted in an estimated cost avoidance of $1,965,533.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Evaluating the role of pharmacists under a collaborative practice agreement in providing patient care for HIV treatment / PrEP using long-acting injectable antiretrovirals cabotegravir and cabotegravir/rilpivirine.**

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Laura E. Hall PharmD, BCPS; Rebecca Lahrman PharmD, MS, BCACP; Jennifer Seifert MS, RPh, BCGP; Jacquelyn Kissel PharmD, AAHIVP; Teagan Vaughn PharmD, AAHIVP; Alvin Choy PharmD, AAHIVP

**UAN:** 0048-0000-25-017-L02-P

**Learning Objectives:**

1. Describe a pharmacist-led long-acting injectable antiretroviral (LAI-ARV) treatment and prevention program within a collaborative practice agreement (CPA).
2. Examine the clinical interventions made by pharmacists in a HIV treatment/ pre-exposure prophylaxis (PrEP) LAI program.

**Purpose:**

LAI-ARVs cabotegravir (CAB) and cabotegravir/rilpivirine (CAB/RPV) are recently FDA-approved ARV regimens for PrEP and treatment of HIV, respectively. Since approval, LAI-ARVs have gained positive perception among patients living with HIV (PLWH) due to advantages such as confidentiality and reduced stigma. Although reports have shown promising clinical outcomes in PLWH, they have also highlighted the challenges of implementing LAI-ARV programs in interdisciplinary clinic settings, including maintenance of patient adherence to injection appointments and management of medication interactions and adverse effects. These studies showcase a need for interprofessional collaboration to improve outcomes in LAI-ARV programs. Pharmacist collaboration in oral ARV management programs has been shown to improve health outcomes by reducing inappropriate regimens, drug interactions, and adverse reactions while improving adherence and maintaining viral suppression in PLWH. One health system has implemented a pharmacist-led CAB management initiative showing quicker access to LAI-CAB and improved patient retention in the programs. The primary objective of this study is to evaluate the role of a clinical pharmacist in a LAI-ARV program by describing and quantifying approval/denial to the program after primary care provider (PCP) referral. The secondary objective is to quantify and qualify the clinical pharmacist interventions during HIV treatment/PrEP LAI program referral review.

**Methods:**

A CPA was developed at five clinic locations in Ohio to implement a pharmacist-led LAI-ARV program for treatment and prevention of HIV. The health system is an FQHC look-alike emphasizing whole person healthcare, providing primary and specialized medical care for those at risk of or affected by HIV, and/or those seeking a welcoming healthcare environment. Patients are referred to the LAI-ARV program by their HIV care providers within the clinic. Pharmacists review these patient referrals for approval/denial into the program based on a set of clinical eligibility criteria. Referral reviews and other program data were collected and retrospectively analyzed for this study. To meet the primary objective, this study will evaluate past referral reviews to describe and quantify pharmacists’ clinical rationale for approval or denial of patients into the program. To meet the secondary objective, this study will examine referral reviews to identify clinical interventions made by pharmacists prior to approval into the program.

**Results:** Results in progress will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**Preliminary conclusion will be presented at the Ohio Pharmacy Residency Conference.

**Corticosteroid of Choice in Critically Ill Patients with Severe Community-Acquired Pneumonia**

Miranda Barkho, PharmD – PGY2 Critical Care Resident at Trinity Health Oakland

Dustin Gladden, PharmD, BCCCP; Molly Bray, PharmD; James Shen, PharmD, BCIDP

**UAN:** 0048-0000-25-018-L01-P

**Learning Objectives:**

1. Compare and contrast guideline recommendations for the treatment of severe community-acquired pneumonia
2. Assess primary literature related to the use of corticosteroids in severe community-acquired pneumonia

**Purpose**:

While the 2019 guidelines from the Infectious Disease Society of America and American Thoracic Society do not recommend corticosteroids for severe community-acquired pneumonia (CAP), the 2024 Society of Critical Care Medicine guidelines support their use for severe CAP. This change was driven by the landmark CAPE COD trial, which found reduced mortality with stress dose hydrocortisone. Whether the clinical benefit is a class effect of corticosteroids or is specific to hydrocortisone remains an unanswered research question. The purpose of this study is to determine the efficacy of hydrocortisone (HCT) vs methylprednisolone (MPD) in patients with severe CAP.

**Methods:**

This was a retrospective study of adult patients admitted to the medical ICU at Trinity Health Oakland with severe CAP between June 2022 to November 2024. Patients were excluded if they had refractory shock, history of cystic fibrosis, positive COVID or influenza PCR within 10 days of admission, or active tuberculosis or fungal infection. The primary endpoint was to determine if there is a difference in ICU length of stay between HCT vs MPN. Secondary endpoints included death by day 28, length of hospital stay, duration of mechanical ventilation, hyperglycemia, and incidence of GI bleed.

**Results:**

A total of 126 patients met inclusion criteria (n=86 MPN vs. n=40 HCT). APACHE II score was similar between groups at baseline, and median pneumonia severity index was slightly higher in the HCT group (138 MPD vs 158 HCT, p=0.005). There was no difference in median ICU length of stay between groups (6 days MPN vs. 7 days HCT, p=0.162). Mortality by day 28 occurred in 29 patients (33.7% MPN vs 35.0% HCT, p=0.888). The median length of stay was 10 days with MPN (IQR 8-16.2) and 11 days with HCT (IQR 3-14). In the subgroup analysis of patients on mechanical ventilation (n=78), duration of mechanical ventilation was 112 hours with MPN vs. 180 hours with HCT (p=0.322). The frequencies of hyperglycemia and gastrointestinal bleeding were similar between the two groups.

**Conclusion:**

There was no difference in efficacy or safety between hydrocortisone or methylprednisolone for patients with severe CAP. These two corticosteroids may be used interchangeably unless further studies become available.

**Shorter Direct Oral Anticoagulant Loading Periods in Acute Venous Thromboembolism**

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Tara Tokar, PharmD, BCPS; Taylor Allen, PharmD, BCPS

**UAN:** 0048-0000-25-019-L01-P

**Learning Objectives:**

1. Review venous thromboembolism (VTE) and the pharmacologic management of the disease state
2. Discuss the safety and efficacy of providing standard versus mixed loading periods of direct oral anticoagulants (DOACs) in the treatment of VTE following therapeutic parenteral anticoagulation

**Purpose:**

Therapeutic anticoagulation is indicated upon new diagnosis of acute VTE, typically starting with parenteral agents inpatient before transitioning to an enteral option. When initiating apixaban or rivaroxaban, a loading period is recommended to target patients in a hypercoagulable phase. There is insufficient evidence to determine the impact of subtracting days of parenteral therapy from the loading period. The purpose of this study is to evaluate efficacy and safety of providing a standard DOAC loading period versus a mixed DOAC loading period following parenteral anticoagulation for acute VTE therapy.

**Methods**:

This is a retrospective, multi-center, cohort study evaluating patients that received VTE treatment with either unfractionated heparin or enoxaparin followed by initiation of standard dose apixaban or rivaroxaban. Standard DOAC loading periods are 10 mg twice daily for 7 days followed by a maintenance dose of 5 mg twice daily for apixaban, and 15 mg twice daily for 21 days followed by a maintenance dose of 20 mg once daily for rivaroxaban. The mixed DOAC loading period accounted for days on parenteral anticoagulation resulting in a shortened load. Patients were excluded if deemed to have an indication for anticoagulation other than VTE treatment or if initiated on a DOAC dose other than the standard dose. The primary efficacy outcome was the comparison of recurrent VTE rates in 90 days. The primary safety outcome was comparison of clinically significant bleeding in 90 days, defined as a hemoglobin drop of at least 2 g/dL in 24 hours, transfusion of at least two units of packed red blood cells, bleeding into a critical site and/or fatal bleeding. The secondary outcome measured overall hospital length of stay between the two groups.

**Results:**

A total of 536 individuals were included in the study. The primary efficacy outcome of recurrent VTE rates did not show a statistically significant difference amongst those administered the standard loading period versus the mixed loading period when comparing apixaban (1.53% vs 3.70%, respectively; p = 0.151) and rivaroxaban (2.22% vs 5.56%, respectively; p = 0.495). Additionally, there was no statistically significant difference in clinically significant bleeding events for those provided a standard loading period versus a mixed loading period when comparing apixaban (1.15% vs 3.70%, respectively; p = 0.076) and rivaroxaban (4.44% vs 5.56%, respectively; p = 0.852).

**Conclusion:**

There is no observable difference in the safety or efficacy of providing a standard versus mixed loading period for initiation of DOACs in the treatment of acute VTE following therapeutic parenteral anticoagulation.

**Naloxone Distribution by a Pharmacist in a Substance Use Disorder (SUD) Clinic within a Federally Qualified Health Center (FQHC)**

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**UAN:** 0048-0000-020-L04-P

**Learning Objectives:**

1. Explain the role of pharmacists in naloxone distribution and patient education.
2. Analyze the effectiveness of pharmacist-distributed naloxone versus provider-prescribed naloxone.

**Purpose:**

This study evaluated the impact of a pharmacist-led naloxone distribution program in a Federally Qualified Health Center (FQHC) Substance Use Disorder (SUD) clinic. By addressing accessibility barriers, the program provided naloxone and education to individuals at high risk of overdose. The study measured changes in naloxone uptake among eligible patients before and after implementing the pharmacist-driven protocol.

**Methods:**

A retrospective chart review analyzed electronic health records (EHR) from the SUD clinic, including adult patients with at least one visit between January 1, 2021, and December 31, 2023. Visits from 2022 were excluded to account for the implementation period of the pharmacist-led naloxone distribution protocol and minimize confounding factors.

Comparator groups included patients who received naloxone prescriptions from providers before and after implementation, as well as those who obtained naloxone samples directly from pharmacists post-implementation. Naloxone prescriptions were identified through a 340B claims data report.

Patients were identified via an EHR-generated report that included demographic details. Additional data collected included prescriber details, prescription fill and distribution dates, number of SUD visits, and diagnoses. For patients receiving pharmacist-distributed naloxone samples, further data covered patient education, overdose risk factors, prescription opioid use, and prior naloxone receipt or training.

Primary outcomes measured included the number and percentage of eligible patients prescribed naloxone, those who obtained it from a pharmacy, and those who received it in-clinic through pharmacist distribution post-implementation. Descriptive statistics and inferential analyses, including chi-squared tests, assessed changes in naloxone distribution rates before and after the intervention, as well as potential associations with demographic and clinical factors such as opioid use history, insurance status, and prior naloxone experience.

**Results:**

Results with be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions with be presented at the Ohio Pharmacy Residency Conference.

**Comparison of Fixed-Dose Prothrombin Complex Concentrate for Warfarin Reversal in Patients with High Body Weight vs Low Body Weight**

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**UAN:** 0048-0000-25-021-L05-P

**Learning Objectives:**

1. Compare fixed versus weight-based strategies of 4F-PCC for vitamin K antagonist (VKA) reversal.
2. Discuss concerns with the fixed-dosing strategy for 4F-PCC in obesity.

**Purpose:**

Multiple strategies exist for the dosing of 4F-PCC for reversal of VKAs, however, there have been many studies conducted utilizing a fixed-dose strategy. These studies have identified a trend toward INR reversal failure in patients that present with high baseline INR values or increased body habitus. This suggests that higher doses of PCC may be needed in these patient populations. Due to the lack of available literature regarding optimal dosing strategies of 4F-PCC in patients with an increased body habitus, the aim of this study was to determine if fixed-dosing is appropriate in this patient population.

**Methods:**

This was a multicenter, retrospective cohort study performed at a large health system. Eligible patients were ≥ 18 years old who received fixed-dose 4F-PCC for the reversal of VKA with a pre-treatment INR > 1.5. Patients that were pregnant, incarcerated, or received a reversal agent at an outside hospital prior to transfer were excluded. The primary outcome was achievement of a post-reversal INR < 1.5. Secondary outcomes included the dose of 4F-PCC administered, the need for repeat dosing of 4F-PCC, hospital length of stay, and in-hospital mortality. Patients with a BMI > 40 kg/m2 or body weight > 100 kg were placed into the high body weight group, while all other patients were included in the low body weight group.

**Results:**

A total of 93 patients admitted during the study timeframe were screened and 43 eligible patients were included. Of the eligible patients included, 33 patients were assigned to the high body weight group and 10 patients were assigned in the low body weight group. Median baseline INR was 2.9 in the high body weight group compared to 3.7 in the low body weight group. The primary outcome was found in 20 (61%) patients in the low body weight group compared to 6 (60%) patients in the high body weight group (p= 1.0). More than half of patients received the 1000-unit fixed-dose of 4F-PCC in both treatment groups (55% and 60%). Only one patient required a repeat dose of 4F-PCC, which was in the low body weight group. There were no statistically significant differences in any secondary outcome and no patients experienced a thromboembolic event or major bleeding after receiving 4F-PCC.

**Conclusions:**

There was no difference found in achieving post-reversal INR < 1.5 between the groups, although limited sample size may have impacted the results. No statistically significant difference existed between any of the secondary outcomes.

**Impact of Pharmacist Review of After Visit Summaries on Readmission Rates**

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Britney Sleeckx, PharmD; Anna Graham, MPH; Marie Lockhart, PhD

**UAN:** 0048-0000-25-022-L04-P

**Learning Objectives:**

1. Evaluate the impact of having pharmacists review discharge medication reconciliations on readmission rates
2. Identify interventions made by pharmacists on discharge medication reconciliations

**Purpose:**

Patients diagnosed with acute myocardial infarction, heart failure, pneumonia, or chronic obstructive pulmonary disease (CODP) are at a higher risk for readmission. Hospital readmissions can lead to increased costs not only for the healthcare system through financial penalties, but also for the patient. The current evidence supports the efficacy of pharmacist-led discharge medication reconciliation in reducing readmission rates and decreasing medication-related problems, thus leading to increased patient safety. However, there is a gap in the standardization of pharmacist involvement during this process. The purpose of this research study is to evaluate if pharmacist review of an after-visit summary (AVS) can lead to reduced readmission rates in a targeted patient population.

**Methods:**

This was a retrospective, cohort study examining 30-day hospital readmissions and emergency department visits. The study included all adult patients with a primary diagnosis of COPD, heart failure, pneumonia, or acute myocardial infarction who were admitted to OhioHealth Mansfield Hospital, Grant Medical Center, Marion General Hospital, Doctors Hospital, and Riverside Methodist Hospital between June 2023 and June 2024. The primary outcome for this study was to compare 30-day return-to-hospital rates between patients who had an AVS reviewed by a pharmacist and those who did not. Secondary outcomes included measuring the types of interventions made as a result of reviewing the AVS.

**Results:**

A total of 99 patients were included with a primary diagnosis of COPD (n=49), heart failure (n=20), or pneumonia (n=30). A total of 83 patients were included in the non-pharmacist-reviewed AVS group and 16 patients were included in the pharmacist-reviewed AVS group. The number of patients readmitted or returned to the ED within 30 days of being discharged with an AVS not reviewed by a pharmacist and reviewed by a pharmacist was 95.18% (n=79) and 75% (n=12) respectively (p=0.007). Of the 16 patients who had an AVS reviewed by a pharmacist, 1 intervention was made on a duplicate, 1 intervention was made on incorrect medication, and 1 intervention was reported as “other”.

**Conclusion:**

This study showed that patients are less likely to be readmitted within 30 days if the AVS was reviewed by a pharmacist. Limitations include the small sample size and the unequal distribution of patients with or without an AVS reviewed by a pharmacist upon the initial admission.

**The Value of Pharmacist-Led Interventions to Mitigate Adverse Drug Events in Dermatology: A Cost-Avoidance Approach**

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**UAN:** 0048-0000-25-023-L05-P

**Learning Objectives:**

1. Discuss the importance and value of having a pharmacist in an outpatient dermatology clinic.
2. Describe a framework to determine the potential cost avoidance associated with pharmacist interventions related to ADEs within dermatology clinics.

**Purpose:**

Dermatology-related disease states can create a significant economic burden in the healthcare system. Pharmacist-led interventions in dermatology clinics can make meaningful interventions when they arise, whether from automated triggers based on patient-reported outcomes or as needed based on patient-specific clinical scenarios. This study evaluated the potential cost avoidance associated with pharmacist interventions related to adverse drug events (ADE) within dermatology clinics.

**Methods:**

This retrospective, observational study reviewed ADE intervention types completed by pharmacists for patients with dermatologic conditions at 14 HSSP locations, and an estimated cost avoidance was calculated. Intervention data from February 2024 to August 2024 was evaluated. Interventions were included for patients who were (1) diagnosed and treated with a specialty therapy for a variety of dermatology disease states, (2) enrolled in HSSP services, and (3) had at least one ADE intervention type documented. Interventions were excluded if there was insufficient documentation to accurately estimate cost avoidance. Data was extracted from a report within the patient management system. The primary outcome was direct and indirect costs (including self-care recommendations) avoided due to specialty pharmacist interventions. Indirect cost avoidances were assigned a potential range of consequences (i.e., 0 = not possible, 0.01 = rare, 0.05 = unlikely, 0.1 = possible, 0.25 = likely, and 0.5 = very likely), and an associated dollar value.

**Results:**

In total69 interventions were conducted during the study period in 65 patients. This study found a potential cost avoidance of up to $40,421.06 over a six-month period. The intervention type with the highest potential cost savings were those where pharmacists recommended discontinuing therapy. Other indirect cost savings were those that prevented a visit to either the dermatology clinic or the emergency room/hospitalization.

**Conclusions:**

In conducting this study, we strive to highlight the importance of having a pharmacist in dermatology outpatient clinics. HSSP are ideally positioned to conduct critically meaningful interventions that can potentially alleviate cost. Future studies should focus on evaluating the financial impact of all pharmacist interventions across a larger sample size.

**Impact of Phenobarbital on Intubation Rates in Acute Alcohol Withdrawal**

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**UAN:** 0048-0000-25-024-L01-P

**Learning Objectives:**

1. Review the standard of care in the treatment of alcohol withdrawal syndrome
2. Discuss the utility of phenobarbital within the treatment of alcohol withdrawal syndrome
3. Evaluate the impact of phenobarbital on intubation rates in acute alcohol withdrawal

**Purpose:**

Benzodiazepines are the standard of care in the treatment of alcohol withdrawal syndrome (AWS). However, therapy-associated complications are common and include respiratory depression requiring intubation. Phenobarbital presents as an alternative treatment of AWS. While studies demonstrate desirable outcomes with phenobarbital, there is not sufficient literature evaluating concomitant sedative requirements in patients receiving phenobarbital for AWS. This retrospective cohort analysis aims to assess concomitant sedative requirements in patients receiving phenobarbital for the purposes of AWS.

**Methods:**

This is an IRB-approved, retrospective cohort analysis including patients (18 years or older) evaluated in the Emergency Department or admitted to The University of Toledo Medical Center who received at least one dose of phenobarbital for the management of AWS between October 1, 2023, to October 31, 2024. Patients were excluded if they received phenobarbital for a non-alcohol associated indication, as well if they left against medical advice. The primary outcome evaluated the incidence of patients who require mechanical ventilation for the purposes of controlling agitation with a sedative after initiation of phenobarbital for the management of acute alcohol intoxication or withdrawal. Secondary outcomes included incidence of adverse effects, occurrence of agitation, length of hospitalization, length of ICU admission, change in patient agitation assessment scores, and aggregate dose of phenobarbital administered to patients for a diagnosis of alcohol withdrawal syndrome.

**Results:**

A total of 39 patient encounters were screened, of which 26 were excluded. The primary reason for exclusion was due to phenobarbital being administered for the treatment of a seizure disorder in 18 patients. Among the 13 patients included, the average daily dose of phenobarbital administered for the entire stay was 104.40 mg (7.25 – 448.78 mg). 84.6% (11/13) of patients received concomitant sedatives during treatment with phenobarbital, 63.6% (7/11) of whom required intubation. The 2 patients who received phenobarbital monotherapy did not require intubation.

**Conclusion:**

At our institution, the use of phenobarbital for the management of alcohol withdrawal syndrome is significantly underutilized. The results of this study may lead to increased support for monotherapy utilization of phenobarbital, and the development of an institutional specific protocol for alcohol withdrawal management. There is potential for improved alcohol withdrawal management, identification of inappropriate sedative use, and enhanced clinical outcomes for patients who present with alcohol withdrawal syndrome.

**Evaluating the Safety Profiles in Acute Ischemic Stroke Patients Treated with Tenecteplase versus Alteplase**

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**UAN:** 0048-0000-25-025-L05-P

**Learning Objectives:**

1. Describe the safety considerations of thrombolytic therapy in acute ischemic stroke.
2. Review previously published data regarding incidence of major and minor bleeding associated with tenecteplase and alteplase use.

**Purpose:**

Tenecteplase (TNK) is increasingly used off-label for acute ischemic stroke (AIS) due to its simplified administration compared to alteplase (r-tPA). However, limited real-world data exists comparing the safety profiles of these thrombolytic agents. This study aimed to fill that gap by evaluating the safety of tenecteplase versus alteplase following St. Elizabeth Healthcare’s transition from alteplase to tenecteplase in August 2022.

**Methods:**

This study has been approved by St. Elizabeth Healthcare’s Institutional Review Board. This retrospective cohort study included patients from six St. Elizabeth Healthcare sites who received either TNK or r-tPA for AIS. The TNK cohort included patients treated between August 1, 2022, and July 31, 2024, while the r-tPA cohort included those treated between August 1, 2020, and July 31, 2022. Data was extracted from electronic health records. Patients aged 18 years or older who presented to the emergency department and received thrombolytic therapy for AIS were included. Exclusion criteria consisted of pregnancy, incarceration, and lack of 24-hour follow-up imaging due to leaving against medical advice or transferring out of the St. Elizabeth Healthcare system. The primary outcome was the incidence of major bleeding events, as defined by the International Society on Thrombosis and Haemostasis (ISTH), within four days of thrombolytic administration. Secondary outcomes included 30-day all-cause mortality, hospital length of stay, neurologic disposition from baseline to discharge or seven days, incidence of minor bleeds, and other adverse events such as angioedema, cardiovascular events, and thromboembolic events.

**Results:**
Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**The effect of a Diabetes Self-Management Education and Support Program (DSMES) on A1c and Diabetes Distress Scales in a FQHC**

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**UAN:** 0048-0000-026-L01-P

**Learning Objectives:**

1. Discuss the current burden of diabetes and complications associated with diagnosis in the U.S.
2. Review the utility of DSMES services, current use, and overview the curriculum.
3. Identify barriers and delays to implementation of DSMES services.

**Purpose:**

Diabetes is a complex disease affecting 11.6% of the U.S. population. Uncontrolled diabetes increases risks and leads to a variety of health complications. To improve patient knowledge and confidence in management of their diabetes diagnosis, the Diabetes Self- Management Education and Support Program, or DSMES, curriculum was created. Studies have shown that DSMES education is effective at reducing hemoglobin A1c values and BMI clinical outcomes. Though DSMES has proven effectiveness, utilization still remains low around the U.S. The purpose of this study was to implement an accredited DSMES program led by clinical pharmacists and a dietician at an FQHC to increase patient knowledge and confidence in self-management of their diabetes diagnosis. Aims of the study included assessing the clinical outcome of 3-month change in A1c value and change in patient specific feelings and stressors associated with diabetes diagnosis by utilizing subjective, patient-completed Diabetes Distress Scores at a 3-month interval for patients enrolled in DSMES services.

**Methods:**

The study was designed as a retrospective chart review to be conducted at Family Health Services of Darke County. Inclusion criteria included patients 18 years of age or older, diagnosis of type II diabetes, referral from their primary care provider for DSMES services, active patient status at Family Health Services of Darke County by having an appointment with their primary care provider within the past 12 months, and an A1c value within 1 month of program enrollment. Patient A1c values were to be collected prior to program initiation and at 3 months into program enrollment. Patient’s diabetes distress was to be assessed using the T2-DDAS at program enrollment and at 3 months into program enrollment.

**Results:**

Implementation of DSMES services at Family Health Services of Darke County is ongoing. Accreditation was obtained through ADCES to allow for increased reimbursement for services. Although we do not have enough data at this point, many lessons were learned throughout the process. Accreditation, staff education, and billing processes can all be complex and time-consuming processes.

**Conclusions:**

Implementation of DSMES services and enrollment of patients will continue in the months to come. Quality markers and a quality improvement project will be created to assess program success in the first year. Feedback from both providers and patients will also be utilized for program improvement.

**Evaluation of the Impact of Integrating a Psychiatric Pharmacist into an Outpatient Clinic in an Underserved Community**

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Other contributors – Magdi Awad, PharmD, MSA; Kenneth Furdich, PharmD, BCACP; Jaime Fazzone, PharmD, BCPP

**UAN:** 0048-0000-25-027-L04-P

**Learning Objectives:**

1. Describe the role of psychiatric pharmacists in outpatient clinics within underserved communities.
2. Identify common drug therapy problems (DTPs) in psychiatric patients and pharmacist-driven solutions to optimize care.

**Purpose:**

Access to psychiatric care is limited in underserved communities, often leading to inadequate management of mental health conditions. The integration of a psychiatric pharmacist into an outpatient psychiatric clinic aims to improve medication therapy management, reduce polypharmacy, and enhance patient outcomes. This study assesses the pharmacist’s impact in identifying and resolving DTPs through collaborative practice.

**Methods:**

A retrospective chart review was conducted for patients referred to the psychiatric pharmacist at an outpatient clinic in a medically underserved area of Ohio. Eligible patients had diagnoses outlined in the DSM-5-TR, including anxiety, depression, personality disorders, substance use disorders, eating disorders, and neurocognitive disorders. The psychiatric pharmacist, integrated into the care team, managed patients’ psychiatric conditions under a collaborative practice agreement (CPA), evaluating the efficacy and safety of prescribed psychotropic medications. Pharmacist-led interventions included medication adjustments, addressing adverse effects, optimizing therapy, and improving adherence. Patient visits were conducted via telehealth or in-person, lasting 30–60 minutes. Follow-ups were individualized based on clinical needs. De-identified patient data were analyzed, categorizing DTPs and pharmacist interventions.

**Results:**

Data collection and analysis are ongoing, but preliminary findings highlight key DTPs addressed by the psychiatric pharmacist. Common issues included the need for additional drug therapy (46 cases), low dosage (44 cases), adverse drug reactions (22 cases), and ineffective drug selection (19 cases). Other concerns included suboptimal drug choices (14 cases) and excessive dosages (11 cases). These findings suggest pharmacist-led interventions effectively optimize treatment plans and enhance medication management for patients in this underserved setting.

**Conclusions:**

Preliminary results indicate that integrating psychiatric pharmacists in outpatient clinics can significantly improve medication management and may improve patient outcomes. Expected benefits may include improved therapeutic goal achievement and reduced polypharmacy. These findings may inform future policy decisions and resource allocation for psychiatric care in underserved communities.

**Efficacy of Micafungin vs Fluconazole for Treatment of *Candida* Urinary Tract Infections**

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James Shen, PharmD, BCIDP

**UAN:** 0048-0000-25-028-L01-P

**Learning Objectives:**

1. Assess the current guidelines and clinical evidence surrounding the use of antifungals for *Candida* urinary tract infections (UTIs)
2. Discuss the effectiveness of micafungin compared to fluconazole for treating *Candida* UTIs

**Purpose:**

*Candida* UTIs, though less frequent than bacterial UTIs, are increasingly recognized in hospitalized patients with specific risk factors. Fluconazole remains the standard first-line treatment due to its high urinary concentration and effectiveness against most *Candida* species. While echinocandins are potent antifungal agents, current guidelines do not recommend their use for UTIs due to low urinary concentrations. Although some literature may suggest echinocandins may be effective, much of this literature is limited to case reports or case series with small sample sizes. Thus, this study aims to evaluate clinical outcomes in patients treated with either fluconazole or micafungin for *Candida* UTIs.

**Methods:**

This was a single-center, retrospective cohort study which evaluated patients admitted to Trinity Health Oakland Hospital between January 25, 2020, and December 31, 2024. Patients eligible for inclusion were those with *Candida* species in their urine, a documented diagnosis of a UTI, and who received either fluconazole or micafungin for at least 72 hours. Patients were excluded if they had candidemia, *Candida* *krusei*, concomitant fungal infections, or presence of urostomy or nephrostomy tubes. The primary outcome was clinical failure, defined as a change to an alternative antifungal, positive follow-up fungal urine cultures within 30 days post-treatment, or worsening/new symptom onset during hospitalization. Secondary outcomes included microbiological cure, re-admission with fungal UTI, and 30-day mortality.

**Results:**

A total of 202 patients were included (n=142 fluconazole (FLUC) and n=60 micafungin (MICA)). No significant differences in baseline characteristics were observed. The primary outcome of clinical failure was similar between groups (16.9% FLUC vs. 25% MICA, p=0.183). In patients with available repeat urine cultures, microbiological cure was found to be higher in the fluconazole group (78.6% FLUC vs. 53.9% MICA, p=0.032). Re-admission with fungal UTIs occurred in 7% FLUC vs. 8.3% MICA, (p=0.749), which was similar between groups. Mortality within 30 days was not affected by choice of antifungal (17.6% FLUC vs. 21.7% MICA, p=0.5).

**Conclusions:**

While no significant difference in clinical failure was observed between fluconazole and micafungin, microbiological cure was found to be significantly higher with fluconazole. This may be attributed to fluconazole’s higher urinary concentrations, supporting its effectiveness in treating *Candida* UTIs. Although fluconazole is still recommended as a first-line agent for *Candida* UTIs, these findings suggest that micafungin may be appropriate for certain patient populations or utilized as an alternative if fluconazole cannot be used. Further research is needed to clarify the clinical impact of microbiological cure and identify scenarios where echinocandin therapy may be beneficial.

**Evaluation of the Efficacy and Safety of Direct Oral Anticoagulants in Patients**

 **with Cancer at Summa Health**

Andrew Burton, PharmD, PGY-1 Pharmacy Resident at Summa Health System

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Rachael Macko, PharmD, MBA, BCPS

**UAN:** 0048-0000-25-029-L01-P

**Learning Objectives:**

1. Assess use and indications for use of DOACs in patients with active cancer
2. Determine safety and efficacy of DOACs in patients with active cancer
3. Identify potential causes, if any, for DOAC treatment failures

**Purpose:**

Direct oral anticoagulants (DOACs) have become the preferred anticoagulation option for various indications, including venous thromboembolism (VTE) and stroke prevention in non-valvular atrial fibrillation (AFIB). Clinical trials have demonstrated their efficacy and safety, particularly compared to warfarin. However, limited real-world data exist on their use in patients with active cancer, who have unique thrombotic and bleeding risks. The objective of this quality improvement project is to evaluate the safety and effectiveness of DOACs in patients with active cancer at Summa Health by assessing the incidence of thrombotic and bleeding events.

**Methods:**

This retrospective single-center study reviewed electronic medical records of patients at Summa Health prescribed a DOAC with an active cancer diagnosis between January 1, 2024, and March 31, 2024. Patients were included if they were ≥18 years old, had an active cancer diagnosis, and were prescribed a DOAC. The primary outcomes measured were the incidence of thrombotic events (deep vein thrombosis [DVT], pulmonary embolism [PE], ischemic stroke) and major bleeding events. Statistical analysis included descriptive statistics to assess event rates.

**Results:**

Of the 119 patients meeting inclusion criteria, 10 (8.4%) experienced an adverse event. This included (0.8%) DVT, 1 (0.8%) PE, 1 (0.8%) ischemic stroke, and 7 (5.9%) major bleeding events. The most prescribed DOAC was apixaban, with 71% of patients on 5 mg BID and 15% on 2.5 mg BID. Additionally, 16 patients (13%) were on any dose of rivaroxaban, while 2 patients (1%) were on dabigatran.

**Conclusions:**

At Summa Health DOACs appear to be a safe and effective anticoagulation option in patients with active cancer, with adverse event rates comparable to those reported in clinical trials. These findings reinforce their role in anticoagulation management for patients with active cancer who require anticoagulation for a variety of conditions. Future investigations should focus on identifying patient- and cancer-specific factors that may predict bleeding risk and guide individualized therapy adjustments.

**Removing Barriers to Medication Access by Providing Free Uber Rides to a Charitable Pharmacy**

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Bethanne Brown, PharmD, BCACP, AAHIVP; Lydia Bailey, PharmD, BCACP

**UAN:** 0048-0000-25-030-L04-P

**Learning Objectives:**

1. Discuss this novel pilot program designed to combat transportation barriers to pharmacy services
2. Interpret the impact this pilot program had on medication adherence and clinical outcomes

**Purpose:**

The purpose of this study was to determine change in adherence rates for maintenance medications after providing free Uber rides to patients of a charitable pharmacy in Southwest Ohio. In addition, changes in clinical markers of A1c, blood pressure, and CAT scores were assessed. St. Vincent de Paul Charitable Pharmacy (SVDPCP) provides no-cost medications and primary care services to under- or uninsured patients who are otherwise unable to afford services. All patients are required to complete a pharmacist-led medication review every 6 months to remain eligible for services. In 2024, 27% of SVDPCP reported transportation issues that delayed or prevented access to these pharmacy services. This echoes a national trend in which 3.6 million Americans delay or forgo healthcare as a result of transportation barriers. Existing literature explores transportation issues for medical visits, but limited information is available regarding solutions. As a potential solution, SVDPCP partnered with UberHealth and Sostento for a one-year pilot program to provide free Uber rides for pharmacy services to patients with self-identified transportation barriers.

**Methods:**

This IRB-approved retrospective cohort study took place from 10/1/2023 to 9/30/2024. Patients were included if they were established at the pharmacy before the pilot program began, had a diagnosis of chronic disease, and used maintenance medications. Maintenance medication pickup dates were analyzed starting six months before the pilot program began and through the duration to calculate medication possession ratios (MPRs) for individual patients. MPRs were then used to calculate adherence rates, with adherence being defined as MPR ≥ 80%. Information related to clinical outcomes was collected at six-month intervals during medication review appointments for the same time period. Changes in adherence rates and clinical outcomes were assessed using paired t-tests.

**Results:**

This study included 67 SVDPCP patients. For the primary objective, the total number of patients considered adherent decreased from 52 to 44, and the overall average MPR decreased from 88% to 84%. The decrease in MPR was statistically, but not clinically significant as both values are above 80%. All three of the clinical markers measured improved, but there was no statistically significant change. Additionally, the number of patients at guideline directed goal A1c and blood pressure increased.

**Conclusions:**

Although there was a decrease in adherence rates, this study offered a new solution to the problem of transportation barriers to pharmacy services. It is unclear if change in clinical markers can be attributed to the pilot program. A solution that addresses the underlying causes and complexities of transportation barriers may be the best approach.

**Impact of a pharmacist-led weight management service in the primary care setting**

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 Ashley Parrott, PharmD, BCACP, MBA; Tara Jellison, PharmD, MBA; Paris Smith, PharmD, BCACP, Shivani Bhakta, PharmD, BCACP

**UAN:** 0048-0000-25-031-L01-P

**Learning Objectives:**

1. Describe the role a pharmacist has in optimizing weight-management therapy.
2. Discuss the potential long-term impact weight loss has on comorbid conditions’ outcomes and their associative healthcare costs.

**Purpose:**
Obesity is a complex, multifactorial disease that has reached epidemic proportions in the United States, with prevalence rates rising from 30.5% in 2000 to 42.4% in 2024. Recognized as a disease by the American Medical Association in 2013, obesity is associated with significant healthcare and economic burdens, increasing the risk of chronic conditions such as hypertension, diabetes, and cardiovascular disease. As the healthcare landscape shifts towards performance-based care models, pharmacists have expanded their responsibilities, particularly in primary care practices, where they are crucial in evaluating and managing medication therapy for loss numerous health conditions, including weight management. With their medication expertise and patient accessibility, pharmacists help patients and providers navigate drug access, facilitate dose titrations, monitor therapy, and optimize patient outcomes. This study reports out the implementation of a pharmacist weight-management clinic; it describes the various challenges and opportunities which occurred, and it seeks to compare the weight loss and metabolic outcomes between a pharmacist-led weight management service with standard care.

**Methods:**
A retrospective chart review was conducted to compare the weight loss and metabolic outcomes of patients enrolled in a pharmacist-led weight management service with standard care. The pharmacist-led group included patients referred for obesity management who attended at least two in-person clinic visits between October 1, 2024, and March 14, 2025. The standard care group includes patients who were seen by a physician, nurse practitioner (NP), or physician assistant (PA) and prescribed a weight-loss medication during the same time frame. Exclusion criteria include virtual visits, BMI < 27 kg/m², and completion of only 1 visit in the allotted timeframe. The primary endpoint of this study is the 12-month projected total body weight (TBW) loss of each patient based on 5% and 10% weight loss goals. Secondary endpoints include changes in body mass index (BMI), total weight loss, changes in cardiometabolic parameters (A1C, systolic and diastolic blood pressure, and lipid profiles), and projected financial impact of weight-loss on comorbid condition management.

**Results:** Results will be presented at the OPRC conference.

**Conclusion:** Conclusion will be presented at the OPRC conference.

**Evaluating Hemoglobin Changes in Patients Declining Blood Transfusions: Efficacy of Alternative Agents**

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Rachel Leis, PharmD, BCPS, BCCCP; Alison Paplaskas, PharmD, BCCCP

**UAN:** 0048-0000-25-032-L01-P

**Learning Objectives:**

1. Identify risks associated with transfusion of blood products
2. Summarize pharmacologic treatment alternatives for patients declining blood product transfusions
3. Review the results of this study and the impact it may have on patient care

**Purpose:**

Hospitalized patients may refuse blood products for personal, religious or ethical reasons. The refusal of blood products presents a significant challenge in managing acute anemia and acute blood loss. Bloodless medicine is an emerging field that includes the use of pharmacologic agents such as erythropoiesis-stimulating agents, iron, folate, and vitamin B12. Currently, there is limited literature evaluating the use of these agents in this population. The purpose of this research is to evaluate current treatment of hospitalized patients who do not consent to the administration of blood products.

**Methods:**

This single site, retrospective, observational study has been completed at a level 1 trauma center and teaching hospital. Hospitalized adult patients from December 18, 2022 to September 1, 2024 that have documented refusal of blood products such as packed red blood cells, plasma, platelets, and cryoprecipitate in the patient chart were included. Patients were excluded if less than 18 years old, pregnant, breastfeeding, incarcerated, or were transferred from an outside facility. The primary endpoint evaluated was change in hemoglobin from admission to discharge. Secondary outcomes included average dose of elemental iron and erythropoiesis-stimulating agents administered. Tertiary outcomes included intensive care unit length of stay, duration of hospitalization, and discharge disposition. Initial hemoglobin level, average twenty-four-hour levels, and last documented hemoglobin level were gathered to analyze the primary endpoint. To evaluate the secondary outcome, data collection included the ordering service, administration date and time, route, and dose of products administered. Number of lab draws and invasive procedures performed, including associated blood loss and the use of cell-saver were collected as it may contribute to anemia. Additional data collection included patient demographics, pertinent past medical history, use of iron or erythropoiesis-stimulating agents prior to admission, date of admission and discharge, admission diagnosis and reason for blood product refusal if documented. Data on whether albumin or blood products were administered during hospitalization were also evaluated.

**Results:**

Seven hundred and nineteen patients were screened for inclusion, with 146 patients meeting inclusion criteria. Of the patients evaluated, reasons for blood product refusal included personal preference, religious preference, and unspecified reason. Further statistical analysis in progress.

**Conclusions:**

Final results will be presented at Ohio Pharmacy Residency Conference.

**Anticoagulation initiation in critically ill patients with new onset atrial fibrillation and sepsis**

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Erica Caffarini, PharmD, BCCCP; Alyssa Meester, PharmD, BCCCP; Marie Lockhart, PhD; John Dillis, MPH

**UAN:** 0048-0000-25-033-L01-P

**Learning Objectives:**

1. Identify risks associated with transfusion of blood products
2. Summarize pharmacologic treatment alternatives for patients declining blood product transfusions
3. Review the results of this study and the impact it may have on patient care

**Purpose:**

Critically ill patients with sepsis have a higher risk of developing new onset atrial fibrillation (NOAF) during their stay in the medical intensive care unit (MICU). Several risk factors increase the risk of stroke in this population including activation of the coagulation cascade in sepsis and the development of NOAF. Simultaneously, critically ill patients often harbor increased risks for bleeding due to comorbidities and coagulopathies in the setting of organ dysfunction. Existing risk stratification tools to evaluate the safety and efficacy of anticoagulation are not validated in critically ill patients. Thus, the purpose of this study is to describe the clinical outcomes associated with initiation of anticoagulation for NOAF in critically ill patients with sepsis.

**Methods:**

 This was a descriptive, retrospective cohort study of MICU patients admitted to a 1,000-bed tertiary community hospital between 1/1/2017 and 7/1/2024. Patients ≥ 18 years of age with a diagnosis of NOAF and sepsis during MICU admission were included. The primary aim of the study was to compare the percentage of patients with NOAF and sepsis who were initiated on anticoagulation versus not initiated on anticoagulation in the MICU. Secondary outcomes included evaluating the incidence of thromboembolic events, major bleeding, and death in the patients initiated on anticoagulation.

**Results:**

A total of 320 patients were screened, but 44 patients met inclusion criteria for the study. The mean age of the patients was 69.5 years of age and 59% were male. Of the 44 included patients, 29 were initiated on anticoagulation and 4 were continued on anticoagulation at discharge (p=0.131). Additionally, 62% of patients initiated on anticoagulation died in the MICU. The median CHA2DS2-VASC score was 5 and the median HAS-BLED score was 4. For thromboembolic events, 2 patients had a documented deep vein thrombosis and 3 patients experienced an embolic stroke, which further warranted treatment with anticoagulation. None of the patients experienced a major bleeding event.

**Conclusions:**

Due to the elevated risk of experiencing a stroke in this patient population coupled with the low incidence of bleeding illustrated in this study, it is reasonable to initiate anticoagulation in patients with sepsis that develop NOAF. However, further research into the clinical impact is warranted, given the high mortality rate in this study.

**Growth and Financial Outcomes for a Remote Physiologic Service for Hypertension in the Primary Care Setting**

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Cory Coffey, PharmD, MS, BCACP, BCPP; Neeraj Tayal, MD; Jodi Grandominico, MD; Natalie Lee, MD, MPH; Jennifer Sabatino, PharmD, BCACP

**UAN:** 0048-0000-25-034-L04-P

**Learning Objectives:**

1. Define remote physiologic monitoring (RPM)
2. Recognize how RPM can be used to optimize disease management
3. Describe the implementation, growth, and financial outcomes of an RPM service for hypertension

**Purpose:**

Remote physiologic monitoring involves patient self-monitoring of physiologic parameters, allowing providers continuous access to data to assess condition control and modify treatment outside of the traditional clinic setting. Potential barriers to adoption of RPM include managing continuous streams of data, patient capability, and financial sustainability. To improve blood pressure control, a pharmacist-run RPM service for hypertension was developed and implemented in a network of primary care clinics. The purpose of this study was to evaluate the growth and financial outcomes of the service.

**Methods:**

Data was obtained via a report generated by a data analytics platform, operational logs, and chart review of the electronic health record. Patients enrolled in the pharmacist-led hypertension collaborative practice agreement (CPA) and remote monitoring service from July 1, 2022 through May 21, 2024 were included in the study. The program was implemented in two phases. Embedded clinical pharmacists played a central role in managing blood pressure data under a CPA and PCPs billed for the service using RPM codes.

**Results:**

Phase 1, which included 140 patients, lasted for 14 months. Patients spent an average of 155 days in the program. PCPs billed an average of $301.46 per patient with an average of $96.30 reimbursement per patient. Phase 2, which included 172 patients, last for 9 months. Patients spent an average of 72 days in the program. PCPs billed an average of $412.93 per patient with an average of $124.17 reimbursement.

**Conclusions:**

Using clinic-owned Bluetooth enabled monitors kept the costs of the program low but may have limited enrollment. Use of vendor-provided cellular enabled monitors was costly, but may have facilitated additional billing opportunities and growth of the program. Pharmacists play a central role in delivering RPM services.

**Evaluation of the safety and efficacy of various insulin dosing for the treatment of hyperkalemia in the emergency department**

Kelsey Carter, PharmD – Mercy Health-Fairfield Hospital

Kelly Schaub, PharmD, BCCCP

**UAN:** 0048-0000-25-035-L01-P

**Learning Objectives:**

1. Explain the significant risks of hyperkalemia and hypoglycemia
2. Describe the role of insulin regular for the treatment of hyperkalemia
3. Interpret statistical results for the treatment of hyperkalemia

**Purpose:**

Hyperkalemia is an electrolyte disturbance that may potentiate fatal arrythmias and should be treated immediately. Insulin is often used given its ability to lower potassium levels rapidly. However, insulin can cause hypoglycemia which poses a great mortality risk. To prevent insulin-induced hypoglycemia, dextrose is administered prior to insulin. Still, hypoglycemia has been found to occur in 8.7% of all patients and 75% of end stage renal disease patients who received insulin for hyperkalemia. The purpose of this study is to identify the optimal dose of insulin regular to appropriately lower potassium levels while preventing hypoglycemia.

**Methods:**

This was a single center, retrospective, comparative cohort study conducted at Mercy Health-Fairfield Hospital. The emergency department hyperkalemia order set was used to identify patients who presented to the emergency department between July 1st, 2018, to July 31st, 2024, and were treated with intravenous insulin regular from said order set. A chart review was then performed to collect pertinent data and baseline characteristics. All adults that were treated in the Mercy Health Fairfield Hospital emergency department with a potassium of greater than or equal to 5.2 mEq/L requiring treatment with intravenous insulin regular were eligible for inclusion. Patients must have had pre-insulin and post-insulin laboratory values including potassium and blood glucose levels. Post-insulin potassium levels were included up to six hours post-insulin and blood glucose levels up to two hours post-insulin. The criteria for exclusion were defined as any missing laboratory values or an age of less than 18 years.

**Results:**

The primary outcome of hypoglycemia occurred in 67 (15.7%) of patients treated with 10 units of insulin regular while only 2 (2.7%) occurrences in the less than 10 units group. With a P-value of 0.05 and a calculated Chi squared of 0.002811, patients treated with 10 units of insulin regular were statistically more likely to experience a hypoglycemic event. The secondary outcome measuring reduction in serum potassium found no statistical difference between using 10 units or less than 10 units of insulin regular with a T-test of 0.42326.

**Conclusions:**

Although the study did not reach power, there was a significant increase of hypoglycemic events when patients were treated with 10 units of insulin regular compared to less than 10 units. There was no significant difference in overall potassium lowering making less than 10 units of insulin regular a safe and effective option for treating hyperkalemia.

**A Retrospective Observation of Continuation of Outpatient Transmucosal Buprenorphine Products for Inpatients with Substance Use Disorder**

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Pamela S. Moore, PharmD, BCGP; Jonathan Belvo, PharmD, BCPS; Danielle Ingram MD, FAAHPM

**UAN:** 0048-0000-25-036-L08-P

**Learning Objectives:**

1. Review the mechanism of action of buprenorphine in the treatment of opioid use disorder
2. Discuss buprenorphine dosing strategies in perioperative pain management

**Purpose:**

Buprenorphine is FDA approved for opioid use disorder (OUD) with high affinity and receptor saturation at the mu opioid receptor. Current guidance from a multisociety working group recommends administration of full mu agonists in addition to buprenorphine and/or increasing the total daily dose (TDD) of buprenorphine and/or dividing the TDD into shorter frequencies for improved perioperative pain control. 1 This project is designed to retrospectively analyze inpatient buprenorphine-containing transmucosal products for the treatment of opioid dependance (BTODs) continuation rates in patients with a diagnosis of OUD at Summa Health to ensure our practice patterns align with literature-based recommendations.

**Methods:**

Retrospective chart review was performed by the primary author for patients with admission dates between May 1, 2024, to November 30, 2024, who were 18 years of age or older with BTODs ordered while inpatient at Summa Health. All patients were categorized into one of four groups: planned surgery, emergent surgery, medical admission, and other. The primary outcome was to analyze if BTODs were resumed in a timely manner, defined as an order being placed for the same TDD of BTOD the patient was presumed to be taking at home +/- 25% within 48 hours of the time of the order for admission. Descriptive statistics were used to analyze outcomes.

**Results:**

137/139 patients meeting inclusion criteria had BTODs ordered in a timely manner. Two patients were not ordered BTOD in a timely manner. The first patient, in the planned surgery group, required retitration prior to discharge due to high opioid requirements. The second patient, in the medical admissions group, required no full mu opioid agonist and was able to restart on their home dose of BTOD.

**Conclusions:**

For patient populations with a BTOD ordered inpatient during admission, it appears it is being continued in a timely manner. This retrospective chart review is limited in scope as patients without an inpatient BTOD ordered during their stay would not have flagged to be included in the study.

**Assessment of Benzodiazepine Dosing for Status Epilepticus in the Emergency Department**

Brooklyn Cassady, PharmD, PGY2 Pharmacy Resident at OhioHealth Grant Medical Center, Columbus

Stephanie Seaman, PharmD, BCCCP, OhioHealth; Sara Jordan Hyland, PharmD, BCCCP, OhioHealth; Kushak Suchdev, MD, OhioHealth; Danni Schneider, DO, OhioHealth

**UAN:** 0048-0000-25-037-L01-P

**Learning Objectives:**

1. Review guideline recommendations for medications in status epilepticus
2. Identify opportunities for optimization of benzodiazepine dosing in seizures in the emergency department

**Purpose:**

The purpose of this study was to compare the need for repeat doses of benzodiazepines (BZD) in status epilepticus (SE) or seizure patients who received guideline recommended initial doses of BZD versus those who did not.

**Methods:**

This cohort study was conducted by retrospective chart review to include patients 18 years of age or older who received IV lorazepam or IM midazolam for seizures in any OhioHealth emergency department (ED). Patients were excluded if they were pregnant, died within 24 hours of arrival to the ED, received other BZD medications or routes of administration for the acute management of seizures, were intubated or otherwise receiving parenteral induction or neuromuscular blocking medications prior to BZD. Patients were assigned to either the guideline recommended dosing group (lorazepam 0.1 mg/kg, max 4 mg IV, or midazolam 10 mg IM) or non-guideline recommended dosing group (any other dose of IV lorazepam or IM midazolam). The primary outcome compared between groups was the rate of patients needing repeat BZD dose(s) for seizures.

**Results:**

Seven hundred and twenty-seven patients were screened to include 416 patients meeting study criteria. The guideline recommended dosing group included 16 patients and the non-guideline recommended dosing group included 400 patients. There was not a statistically significant difference in the need for repeat BZD dosing in guideline vs non-guideline recommended dosing (1 patient (6.25%) vs. 86 patients (21.5%), p = 0.141). Hospital length of stay was longer in the guideline recommended dosing group at a median 3.98 days (IQR 0.19-33.00) versus 1.75 days (IQR 0.07-42.72) (p = 0.003).

**Conclusions:**

Patients with seizures managed in the ED predominantly received lower doses of parenteral BZDs than recommended in current guidelines. The need for repeat BZD doses was not significantly different between the guideline recommended versus non-guideline recommended dosing groups, though this finding may have been biased by a lower index of provider suspicion for true SE among the lower dosing patients.

**Clinical Impact of Pharmacists Interventions in Hypertensive Patients**

**on Warfarin Therapy**

Megan Castelli, PharmD; PGY1 Pharmacy Resident at Summa Health, Akron

 Rhianna Godios, PharmD, BCACP, CACP; Kathleen Babcock, PharmD, BCPS

**UAN**: 0048-0000-25-038-L01-P

**Learning Objectives**:

1. Review guideline recommendations regarding hypertension management
2. Evaluate current literature on the pharmacist’s role in hypertension management
3. Discuss strategies and barriers to pharmacist collaborative practice agreements

**Purpose:**

Patients with uncontrolled hypertension taking anticoagulants are at a higher risk for poor outcomes. At Summa Health Anticoagulation Management Service (SAMS) the collaborative practice agreement (CPA) extends only to anticoagulation management and no other compelling indications. The purpose of this quality improvement project is to determine the impact of pharmacist recommendations and monitoring in hypertensive patients on warfarin enrolled at SAMS.

**Methods:**

This project included patients ≥ 18 years old, currently on warfarin, enrolled at SAMS on the Summa Health System-Akron Campus, and with a documented elevated blood pressure (BP) of > 140 mmHg systolic or > 90 mmHg diastolic at a prior visit. Exclusion criteria included patients without a BP within past three months, testing INRs at home, and pregnancy. After evaluation, the pharmacist provided pharmacologic recommendations to prescribers and non-pharmacologic recommendations to patients. The primary endpoint was to evaluate the 30-day change in BP following pharmacist intervention through retrospective chart review. Prescriber interest in CPA with pharmacists was evaluated by survey. Descriptive statistics were used.

**Results:**

Forty patients were included for evaluation by pharmacist. At time of evaluation, 23 patients (57.5%) had BP values at goal and 20 (87%) of those patients did not have BP rechecked during the previous visit. Seventeen patients had BP values >140/90 despite recheck, and all patients in this group received non-pharmacological recommendations. Thirteen pharmacologic recommendations were made to prescribers and 69.2% of interventions lead to increased monitoring or titration of medications. The average reduction in BP ≥ 30 days following intervention was 12.7 mmHg decrease in systolic and 7.9 mmHg in diastolic BP. The prescriber survey indicated pharmacy interventions increased interest in CPA.

**Conclusions**:

In hypertensive patients, pharmacist interventions decreased both the average systolic and diastolic BP values. This information will be utilized to identify opportunities to expand pharmacy services across Summa Health System. Prior to this project, many patients did not have their BP rechecked after initial value of >140/>90. This information identifies an area for improvement in SAMS Clinic workflow. Suggestions for improvement include additional staff education and alteration of progress note template to trigger a reminder.

**Evaluation of Vasopressin Discontinuation Method Upon Norepinephrine Duration in Patients with Septic Shock**

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Karly Rupert, PharmD; Kristen Monarch-Mocek, PharmD, BCPS; Marcia Honisko, PharmD, BCOP

**UAN:** 0048-0000-25-039-L01-P

**Learning Objectives:**

1. Determine the impact of tapered versus abrupt discontinuation of vasopressin upon duration of norepinephrine therapy
2. Evaluate multifarious predisposing patient factors that may affect the duration of days on norepinephrine

**Purpose:**

The Surviving Sepsis Guidelines offer direction on the escalation of vasopressors in septic shock (as demonstrated in the VASST and VANISH trials), but they lack specific recommendations for the weaning process off vasopressors. This vagueness leaves space for variability within different clinical practices and potentially affects patient outcomes. This study aimed to examine the duration of norepinephrine administration following the titration off vasopressin compared to the abrupt stopping of vasopressin.

**Methods:**

This investigation was a retrospective non-inferiority cohort study from June 2022 to June 2024 of patients with septic shock that received norepinephrine as the primary vasopressor and vasopressin as subsequent therapy. Patients were stratified into two groups depending on which method of vasopressin discontinuation they received. The primary outcome was to determine the difference in the duration of norepinephrine administration days between patients for whom vasopressin was gradually tapered off and those for whom it was abruptly discontinued.

**Results:**

Results will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Evaluating a system to site-level transition of controlled substance discrepancy management**

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Sara Jordan Hyland, PharmD, BCCCP; Pat Helman, PharmD, MS; Donald Sullivan, RPh, PhD

**UAN:** 0048-0000-25-040-L04-P

**Learning Objectives:**

1. Discuss the value of robust controlled substance monitoring programs within a health system
2. Evaluate the effectiveness of process and operational adjustments, system-wide education, and dedicated site-based support specialists in improving controlled substance management

**Purpose:**

Managing controlled substances involves significant operational considerations, including storage, record keeping, and training. One of the most resource-intensive tasks is resolving inventory discrepancies. Institutions have tried various processes and staffing models, such as site-based versus system-based loci for reviewing and resolving ADC discrepancies. At OhioHealth, a multi-hospital system, these tasks were managed at the system level. Recently, they transitioned Controlled Substance Support Specialists to the site level to address perceived limitations in discrepancy resolution time.

**Methods:**

This quality improvement project evaluated the transition from system-level to site-level controlled substance compliance at Grant Medical Center (GMC). The change included process and operational adjustments to discrepancy monitoring, system-wide education, and the introduction of dedicated site-based controlled substance support specialists. Baseline data were collected from January 1 to May 16, 2024, and post-implementation data from June 1 to December 31, 2024. The primary outcome measure was the average time to discrepancy resolution. Secondary measures included the percentage of unresolved discrepancies at seven days and types of variances reported. The process measure was the average number of actions taken per discrepancy, and the balancing measure was the instances of insignificant loss reports. Discrepancy outcomes, process, and balancing measures were assessed to capture the effects of quality improvement before, during, and after the program change.

**Results:**

The implementation of site-level resources at GMC was associated with a significant reduction in the average time to discrepancy resolution and the percentage of discrepancies unresolved after seven days. There was no significant change in the average number of actions taken on discrepancies or the percentage of variance types. Additionally, there was no significant difference in the instances of insignificant loss reports. Regarding the impact on other departments, the transition affected areas outside of pharmacy as well. The Anesthesia department, which is particularly vulnerable to controlled substance discrepancies due to the nature of its workflow, reported a significant amount of time saved for their leadership, including physicians and mid-level providers. They also noted an increased "culture of discrepancy management" within their department following the transition.

**Conclusions:**

Implementing site-specific resources for controlled substance management has the potential to significantly and positively impact the health system's operations and culture.

**No Sugarcoating it: Assessing the Impact of GLP-1 & GLP-1/GIP Receptor Agonist Shortages on Glycemic Control**

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**UAN:** 0048-0000-25-041-L01-P

**Learning Objectives:**

1. Discuss the role of incretin therapy in managing type 2 diabetes (T2DM).
2. Assess the timeline, causes and impact of Glucagon-Like Peptide-1 (GLP-1) and GLP-1/Gastric Inhibitory Polypeptide (GIP) receptor agonists (RAs) shortages.
3. Propose approaches to navigating drug shortages using available evidenced based literature.

**Purpose:**

Type 2 Diabetes Mellitus (T2DM) affects millions of Americans and is a leading cause of death. Proper glycemic control is crucial to prevent complications such as retinopathy, kidney disease, and cardiovascular issues. GLP-1 and dual GLP-1/GIP RAs effectively manage T2DM, improving glycemic control, reducing cardiovascular risk, and promoting weight loss. However, recent medication shortages have impacted patient access. This study aimed to evaluate the effect of these shortages on glycemic control and adverse patient outcomes.

**Methods:**

This retrospective cohort study examined adults with T2DM at Henry Ford St. John Family and Masonic Medical Centers prescribed three months of GLP-1 or dual GLP-1/GIP RA therapy at maintenance doses, who experienced a therapy interruption. Patients were excluded if they had less than three months of maintenance doses, missing HbA1c levels, discontinued therapy due to side effects or cost, a history of chronic systemic glucocorticoid use, or an organ transplant. The primary outcome was change in HbA1C pre- and post-therapy interruption. Secondary outcomes included the incidence of gastrointestinal adverse effects, hyperglycemia, and hypoglycemia-related hospital/clinic visits.

**Results:**

A total of 71 patients were included in the study, with a mean age of 59.9 years. Of these, 64.8% were female, and 63.4% were Caucasian. The average duration of established therapy before interruption was 12.6 months, with a mean baseline HbA1c of 7.2%. Most patients (63.4%) were prescribed dulaglutide. In response to the therapy interruption, 25.4% of patients had an additional glucose-lowering agent added, 35.2% underwent a dosage adjustment of their existing medication, and 39.4% had no modifications to their existing therapy. HbA1c increased from 7.1% to 7.6% (p < 0.001) from baseline to 12 months post-interruption. There were no differences in the number of adverse events and clinic/hospital visits when comparing pre- and post-therapy interruption.

**Conclusions:**

Shortages GLP-1 & dual GLP-1/GIP RA significantly increased patient’s HbA1c up to 12 months post interruption in therapy. Long-term shortages or restrictions of these agents are likely to result in adverse clinical outcomes. Healthcare systems should implement strategies to prevent and quickly address drug shortages to ensure optimal diabetes care.

**The Impact of Gabapentin on Benzodiazepine Dose Reduction in Alcohol**

**Withdrawal Syndrome (AWS) Patients: A Retrospective Cohort Study**

Anne Davidson, PharmD – PGY1 Pharmacy Resident at Firelands Regional Medical Center, Sandusky

Samuel Martin, PharmD, BCPS; Christian Stang, PharmD, BCPS; Jaclyn Jensen, PharmD; McKenna Sanner, PharmD, CACP

**UAN:** 0048-0000-25-042-L01-P

**Learning Objectives:**

1. Report the difference in benzodiazepine requirements for patients receiving gabapentin versus those who did not receive gabapentin
2. Evaluate various effects of gabapentin on course of therapy for patients experiencing AWS

**Purpose:**

Benzodiazepines have traditionally been used as treatment for patients experiencing AWS; however, use is limited by their side effect profile and abuse potential. Currently, data is conflicting regarding the use of adjunct gabapentin and its effects on benzodiazepine doses required in AWS. Some studies suggest that gabapentin use with benzodiazepines does not impact benzodiazepine doses required, while other observational studies from recent years have shown that use of gabapentin with benzodiazepines was associated with a reduction in the cumulative benzodiazepine dose. Additional data is needed to determine the role of gabapentin in the optimal treatment of AWS. This study aims to further elucidate the effect of adjunct gabapentin on reducing benzodiazepine dose requirements in patients experiencing AWS.

**Methods:**

This retrospective cohort study was conducted at a 287-bed regional medical center and aims to further describe the effect of adjunct gabapentin on reducing benzodiazepine dose requirements in patients experiencing AWS. The study includes patients aged 21 or older on the benzodiazepine-containing clinical institute withdrawal assessment for alcohol (CIWA) protocol. Patients who received phenobarbital at any point during their admission were excluded from the study. Subjects were categorized into a control group of patients who did not receive any gabapentin and a treatment group of patients who received at least one dose of gabapentin during their hospital stay. The primary endpoint is the reduction in benzodiazepine doses used while patients were admitted to the hospital. The secondary endpoint is reduction in length of hospital stay. As an exploratory outcome, the aforementioned primary and secondary endpoints was applied to study the effectiveness of various doses of gabapentin in reducing benzodiazepine requirements.

**Results:**

Results from this study will be presented at the Ohio Pharmacy Residency Conference in May 2025.

**Conclusions:**

Conclusions from this study will be presented at the Ohio Pharmacy Residency Conference in May 2025.

**Implementation of a Quality Initiative to Promote Opportune Antipsychotic Discontinuation in the ICU**

Emily M. Dickens, PharmD – PGY1 Pharmacy Resident at Mercy Health – St. Vincent Medical Center

Abagail Barazi, PharmD, BCCCP; Deidre J. Burger, PharmD, MBA, BCPS; Zsanett Kormanyos Keskes, PharmD, BCCCP

**UAN:** 0048-0000-25-043-L01-P

**Learning Objectives:**

1. Recall common risk factors for development of ICU delirium.
2. Discuss guideline recommendations on antipsychotic use for the management of ICU delirium.

**Purpose:**

Use of antipsychotics for prevention or treatment of intensive care unit (ICU) delirium remains common, despite guideline recommendations against this practice. Prior studies have demonstrated these agents are frequently continued beyond the acute episode with continuation reported in 21-55% of cases. A recent chart review at our institution evaluating antipsychotic use revealed similar numbers to those reported in the literature. The purpose of this quality initiative is to optimize the use of antipsychotics for ICU delirium and promote prompt discontinuation when no longer indicated.

**Methods:**

This Plan-Do-Study-Act quality improvement project consists of multidisciplinary education and a discontinuation decision tree which may be utilized to identify candidates for de-escalation and facilitate dose tapering. The provider and pharmacist education focuses on guideline recommendations for management of ICU delirium and commonly used antipsychotic agents. The education for nurses has a larger emphasis on the Confusion Assessment Method for the ICU (CAM-ICU) and non-pharmacologic interventions. Cycle one focused on development and approval of these materials, while cycle two involved implementation within a pilot ICU. A retrospective chart audit was conducted within the pilot unit to assess the impact on antipsychotic continuation at ICU transfer and hospital discharge. Results from a prior audit were used as a baseline. The initiative was introduced to two additional ICUs in cycle three and will be expanded to step-down units in cycle four.

**Results:**

Educational materials and an antipsychotic discontinuation decision tree were approved by the Pharmacy and Therapeutics Committee in October 2024. The interventions were then introduced to the Neurocritical Care Unit throughout November. Education was provided to medical residents via didactic lecture, nurses via shift huddles, and nurse practitioners and attending physicians via personal communication. A retrospective chart audit was conducted from November 8, 2024, to February 28, 2025, and included 10 patients. Of the 10 patients, 60% were continued on antipsychotics at ICU transfer and 30% were continued at discharge. At antipsychotic initiation, 70% of patients had a negative CAM-ICU score. This demonstrates a decrease in rates of continuation at transitions of care, and initiation with a negative CAM-ICU score compared to baseline. Based upon this trend, the interventions were expanded to the Medical and Surgical ICUs from mid-February to mid-March using a similar approach. This project is ongoing, with additional chart audits and staff education in progress.

**Conclusions:**

Final conclusions will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Pre and Post Retrospective Review of Sedation Medications Post-Intubation in the Emergency Department of a Community Hospital**

Mickie Doane, PharmD - PGY1 Pharmacy Resident at St. Elizabeth Healthcare in Edgewood, Kentucky

Elizabeth Giordullo, PharmD, BCPS, BCCCP; Tara Rennekamp, PharmD

**UAN:** 0048-0000-25-044-L01-P

**Learning Objectives:**

1. Identify the potential risks of inadequate sedation during rapid sequence intubation (RSI).
2. Discuss the role of the emergency department pharmacist in rapid sequence intubation.

**Purpose:**

In the emergency department, patients often undergo RSI for several indications including altered mental status, poor ventilation, and poor oxygenation. Lack of adequate sedation can cause increased agitation, which can put patients at risk for physical harm and self-extubation. The purpose of this study is to assess the incidence of post-intubation agitation using the Richmond Agitation-Sedation Scale (RASS) pre and post intervention, implement electronic medical record (EMR) changes to facilitate the ordering of bolus sedation doses, and provide provider education regarding bolus sedation dosing.

**Methods:**

This study has been approved by St. Elizabeth Healthcare’s Institutional Review Board. A retrospective pre and post chart review will be conducted during two timeframes: January 1, 2024 to February 28, 2024 and January 1, 2025 to February 28, 2025. Provider education and EMR changes to facilitate the ordering of bolus doses were implemented between the pre and post group analysis. The primary outcome will assess the percentage of patients with a RASS score between –1 and 1, comparing the median between the pre and post groups. The secondary outcomes will assess the percentage of patients with a negative Confusion Assessment Method for the Intensive Care Unit (CAM-ICU), ICU length of stay, time from intubation to goal RASS score documented, and time on ventilator. Patients at least 18 years of age will be included in the study if they were admitted to a St. Elizabeth Healthcare facility and underwent rapid sequence intubation, and received fentanyl, propofol, midazolam, dexmedetomidine initial bolus and/or continuous infusion. Patients will be excluded if they received pre-procedure sedation or one-time doses of fentanyl, propofol, rocuronium or vecuronium. Data collection will include: baseline demographics, indication for RSI, time of RSI medication doses, time of sedation order-set placement, time of intubation, starting dose of sedation, RASS scores in the emergency department, first RASS score in ICU, CAM-ICU score, ICU length of stay, days on ventilator, and facility.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusion:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Impact of Clinical Pharmacists in an Endocrinology Osteoporosis Clinic**

Abigail Downing, PharmD – PGY2 Ambulatory Care Resident at The Ohio State Wexner Medical Center Melissa J. Snider, PharmD, BCACP, CLS; Hannah Rhinehart, PharmD, BCACP, Diana Vinh Venci, PharmD, BCPS, CLS, BCGP; Aaron Bagnola, BCCP, BCPS; Steven Ing, MD

**UAN:** 0048-0000-25-045-L04-P

**Learning Objectives:**

1. Review current literature pertaining to pharmacists’ involvement in multidisciplinary management of osteoporosis
2. Describe clinical pharmacists’ role and outcomes within an endocrinologist-led high-risk osteoporosis clinic

**Purpose:**

Osteoporosis is a common metabolic disease in the United States, affecting an estimated 12.3 million Americans. It is associated with the risk of fragility fractures, leading to increased disability and mortality. Unfortunately, initiation and persistence to osteoporosis pharmacotherapy is often lacking. Studies have described pharmacists’ impact on the improvement in initiation and adherence to osteoporosis medications in the primary care setting. However, there is a gap in literature regarding the improvement of outcomes when pharmacists are integrated into comprehensive care in high-risk osteoporosis clinics (HiROC). The purpose of this study is to evaluate the impact of pharmacists on initiation of non-oral osteoporosis medications, adherence, and access to the clinical care team when incorporated into an endocrinologist led HiROC at an academic medical center.

**Methods:**

This is a retrospective chart review comparing new patients seen by an endocrinologist in a HiROC pre-pharmacist, July through December 2015, to new patients seen in the HiROC post-pharmacist, July through December 2023. Patients will be reviewed for a 9-month period following the initial encounter. Patients will be included if they have a diagnosis of osteoporosis and were recommended to begin non-oral osteoporosis pharmacotherapy during the specified chart review period. Primary outcomes will evaluate the percentage of patients who initiate non-oral therapy within 3 months, the percentage who start any therapy within 9 months, adherence over 9 months of follow-up, and barriers encountered during initiation. Secondary outcomes will describe access to the osteoporosis care team, bone turnover markers collected, and fracture occurrences during the defined study period. A subgroup analysis will evaluate interventions made during pharmacist-led visits.

**Results:**

Results and conclusions to be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Results and conclusions to be presented at the Ohio Pharmacy Resident Conference.

**Efficacy and Safety of Intravenous Heparin Venous Thromboembolism Protocol for VTE in Dose-Capped vs Non-Dose-Capped Patients**

Nora Farha, PharmD – PGY1 Pharmacy Resident at Corewell Health William Beaumont University Hospital, Royal Oak, MI

Megan MacLean, PharmD; Jenna Holzhausen, PharmD, BCPS

**UAN:** 0048-0000-25-046-L01-P

**Learning Objectives:**

1. Review current literature associated with the use of dose-capped versus non-dose-capped heparin nomograms in the management of venous thromboembolism (VTE).
2. Evaluate the impact of a heparin dose cap on time to therapeutic anticoagulation.

**Purpose:**

The effectiveness of unfractionated heparin (UFH) dosing in obese patients for VTE treatment is not well established. Current protocols often employ weight-based dosing with capped infusion rates, which may delay the time to therapeutic activated partial thromboplastin time (aPTT) and increase risk of adverse outcomes in obese populations. This study evaluated the efficacy and safety of a nurse-driven UFH nomogram, in patients subject to dose caps versus non-dose-capped patients.

**Methods:**

This retrospective, multicenter cohort study included adults receiving UFH for at least 24 hours using a standardized VTE nomogram with boluses between August 1, 2024, and August 31, 2024. Patients were stratified into two groups: those weighing ≤127.8 kg (non-dose-capped) and those >127.8 kg (dose-capped). The primary outcome was time to therapeutic aPTT defined as two consecutive aPTT within nomogram goal of 60 to 90 seconds. Secondary outcomes included percentage of patients achieving goal aPTT at 24 and 48 hours, compliance with the nomogram, and incidence of bleeding or thrombotic events. Statistical analysis was performed using SPSS Version 29.0.

**Results:**

A total of 126 patients met inclusion criteria (non-dose-capped: n=119; dose-capped: n=7). The mean time to therapeutic aPTT was 37.6 ± 19.2 hours in the non-dose-capped group and 36.5 ± 18.1 hours in the dose-capped group (p=0.15). At 24 hours, 42.9% of non-dose-capped patients and 57.1% of dose-capped patients achieved goal aPTT (p=0.70). Compliance of nurse actions was assessed across multiple parameters. Overall, 67.7% of aPTTs collected, 75.4% ordered, and 81.5% scheduled met compliance criteria. Notably, patients who achieved therapeutic aPTT demonstrated significantly higher overall compliance for nomogram actions compared with those who did not (78.8% vs. 55.6%; p=0.03). Bleeding events occurred in 13.5% of patients in the non-dose-capped population with no occurrence in the dose-capped patients, no significant difference between groups.

**Conclusions:**

The implementation of a heparin dose cap did not significantly delay time to therapeutic aPTT. Compliance with the nurse-driven nomogram was associated with achieving target anticoagulation. Future quality improvement efforts should focus on optimizing adherence to the protocol.

**Evaluating the impact of a Best Practice Advisory on Inappropriate Medication Ordering in Patients with Parkinson’s Disease**

Morgan Ferrell, PharmD – PGY1 Pharmacy Resident at OhioHealth Doctors Hospital

Brigitta Miller, PharmD; John Elliot, PhD, MPH; Alicia Swierz, PharmD

**UAN:** 0048-0000-25-047-L05-P

**Learning Objectives:**

1. Discuss the risks of hospitalization in patients with Parkinson’s disease versus those without
2. Learn why dopamine-blocking agents are contraindicated in patients with Parkinson’s disease
3. Evaluate current efforts to minimize contraindicated medication ordering and administration

**Purpose:**

Patients with Parkinson’s disease (PD) are hospitalized 1.5 times more frequently than patients without PD and are at increased risk for adverse outcomes during hospitalization. This risk is increased when patients are given dopamine-blocking agents (DBAs) that exacerbate their motor and non-motor symptoms. Despite this, DBAs are frequently prescribed in hospitals. A Best Practice Advisory (BPA) was implemented in April 2023 within OhioHealth’s electronic medical record to reduce DBA orders for PD patients by alerting healthcare providers to contraindications. This study aims to assess the BPA’s effectiveness in reducing inappropriate DBA orders and improving patient outcomes.

**Methods:**

The primary aim is to compare the total number of DBA orders and administrations before and after the BPA. Data on DBA orders and administrations were collected for the pre-BPA period (April 2022–March 2023) and compared to BPA firings (as a surrogate for DBA orders) and DBA administrations in the post-implementation period (April 2023–October 2024). The secondary aim is to evaluate the impact of DBA exposure on patient outcomes, including complications (e.g., falls, delirium, infections), length of stay, in-hospital mortality, discharge to higher levels of care, and readmission at 30 and 180 days.

**Results:**

Of 243 patients screened, 181 were included (n=94 in pre-BPA group, n=87 in post-BPA group). There was no significant difference in orders or administrations between the two groups. Although there was an overall decrease in orders (18 vs. 12, p=0.333), administrations increased post-implementation (9 vs. 13, p=0.269). For the secondary outcomes, there was a statistically significant increase in delirium in the post-BPA group (32 vs. 43, p=0.036), while no other outcomes reached statistical significance.

**Conclusions:**

Further efforts are needed within our health system to prevent contraindicated medications from reaching patients with PD. Upon reviewing the data, we identified issues with the BPA’s functionality. We found that our alerts are triggered by the presence of carbidopa-levodopa on the patient’s pre-admission medication list rather than by a PD diagnosis code. Additionally, the BPA accounted for more medications than were analyzed in this study. Moving forward we plan to collaborate with our informatics and medication safety teams to optimize this BPA’s functionality as the current version did not significantly reduce inappropriate DBA use.

**Colestipol for Abemaciclib-Induced Diarrhea**

Emma Finger, PharmD – PGY1 Pharmacy Resident at The Christ Hospital Health Network

Anli McCoy, PharmD, BCOP; Tim Hamer, PharmD, BCOP; Shelby Moore, PharmD, BCOP

**UAN:** 0048-0000-25-048-L01-P

**Learning Objectives:**

1. Describe the adverse effects of abemaciclib and management.
2. Discuss the effect of adding prophylactic colestipol to abemaciclib therapy on the incidence of diarrhea.

**Purpose:**

Diarrhea is a common adverse effect of abemaciclib, occurring in up to 90% of patients on treatment. In abemaciclib clinical trials, loperamide was primarily used to prevent and treat diarrhea, though in practice loperamide alone isn’t always adequate to manage diarrhea. Within our institution, a newer practice of using colestipol to prevent abemaciclib-induced diarrhea has been adopted, which was extrapolated from neratinib studies. There is currently no evidence available demonstrating the effectiveness of colestipol for prevention of abemaciclib-induced diarrhea. This study aimed to determine if prophylactic colestipol reduces the incidence and severity of diarrhea in patients taking abemaciclib.

**Methods:**

This was an institutional review board-approved, retrospective cohort study evaluating patients with hormone receptor (HR)- positive human epidermal growth factor receptor 2 (HER2)-negative breast cancer who were prescribed abemaciclib between January 2019 and December 2024. This study compared patients treated with abemaciclib who received prophylactic colestipol versus patients who do not receive colestipol. Key data points collected included abemaciclib initiation date, end date, starting dose, dose titrations and discontinuations, loperamide dose and duration, colestipol dose and duration, diarrhea grade, time to onset and duration, other diarrhea causes, and additional antidiarrheal medications. The primary outcome was the incidence and severity of diarrhea. Secondary outcomes included incidence of abemaciclib dose reduction due to diarrhea, discontinuation of abemaciclib due to diarrhea, and hospitalization rates due to diarrhea.

**Results:**

Of the 157 patients reviewed, a total of 129 patients were included in the study. Prophylactic colestipol was administered to 24 patients. In those who received colestipol, 21 (87.5%) had diarrhea vs 87 (82.9%) patients not administered colestipol (P=0.578). Dose reductions occurred in 11 patients who received colestipol and 25 patients who did not (P=0.583). Discontinuations due to diarrhea occurred in 1 colestipol patient and 21 patients who did not receive colestipol (P=0.062). Abemaciclib was held in 7 colestipol patients and 29 patients who did not receive colestipol (P=0.878). There was no statistically significant difference in the incidence of diarrhea in those that received prophylactic colestipol compared to those who did not.

**Conclusion:**

The addition of prophylactic colestipol to abemaciclib therapy did not result in a statistically significant change in incidence of diarrhea. Limitations included a small sample size and information availability in the electronic medical record.

**Simulated Live Interpreter-Patient Encounters: Impact on Pharmacy Students’ Communication Skills and Confidence**

David Foote, PharmD, BCPS – PGY-2 Ambulatory Care Resident at The Ohio State University College of Pharmacy

Kristy Jackson, PharmD; David Matthews, PharmD, BCACP

**UAN:** 0048-0000-049-L04-P

**Learning Objectives:**

1. Recognize the importance of appropriate use of medical interpreters
2. Describe the impact of student pharmacists participating in a simulated patient encounter with an interpreter

**Purpose:**

The primary objective of this study is to measure students’ self-assessed skills and confidence in employing best practices for communication through an interpreter. Secondary objectives include measuring students’ perception of the value of the activity and comparing students’ self-assessment of their skills relative to the activity facilitators’ assessment. The 2025 Accreditation Council for Pharmacy Education (ACPE) Accreditation Standards for pharmacy education require students to recognize and mitigate cultural and structural barriers to improve access to care. Combined with the ability to communicate effectively, a primary way to overcome the systemic barriers are to use language interpreter services for those with limited English proficiency. Education of pharmacy students on the use of interpreter services has limited literature, specifically in the setting of a simulation activity**.**

**Methods:**

Doctor of Pharmacy students enrolled in their third professional year from 2022-2024 participated in a practice lab simulation designed around language interpreter services. Before the experience, students were given a 45-minute lecture on best practices for utilizing interpretation services, followed by a self-reflection pre-survey. Students then participated in a simulated patient encounter with a standardized limited English proficiency patient and a live interpreter. After the live simulation, the volunteer interpreter completed an evaluation of students’ implementation of best practices, and students completed a self-reflection post-survey. The student survey assessed their level of confidence and knowledge in implementing best practices and their self-assessment of performance in the simulation. Descriptive and inferential statistics will be used to describe the change in self-assessed skills before and after the live simulation. Analysis of variance between student and facilitator perception of performance will also be made. Thematic analysis of open-ended responses from students will be used to further evaluate the benefit of the activity, including an assessment of the most beneficial part of the experience and suggestions for improvements.

**Results:**

353 students in their P3 year across 3 cohorts completed the simulation. Across 3 cohorts of students, there was a statistically significant improvement in self-assessed competency after completing the simulation (p<0.001). Additionally, there was a statistically significant improvement in self-assessed confidence in employing best practices for interpreter use after completing the simulation (p<0.001).

**Conclusions:**

Simulated patient encounters with the use of a live interpreter increased students self-assessed confidence and competency.

**Impact of a Pharmacist-Driven MRSA Nasal Swab Screening Protocol on Anti-MRSA Therapy Utilization in Hospitalized Patients with Known or Suspected Pneumonia**

Alex Forehand, PharmD, PGY1 Pharmacy Resident at Firelands Regional Medical Center, Sandusky

Dawn Fitt, RPh; Ryan Martin, PharmD; Jacob Reyes, PharmD, BCPS; Keith Posendek, PharmD, BCPS, BCCP, BCGP

**UAN:** 0048-0000-25-050-L01-P

**Learning Objectives:**

1. Report the impact of MRSA PCR nasal swabs on anti-MRSA antibiotic usage
2. Explain the role that MRSA nasal swabs play in both direct and indirect costs associated with anti-MRSA therapy

**Purpose:**

Methicillin-resistant Staphylococcus aureus (MRSA) is a significant cause of morbidity and mortality in hospitalized patients. Anti-MRSA therapy, such as vancomycin, linezolid, and ceftaroline have risks of toxicity and the potential for side effects. Additionally, overuse or misuse may promote antimicrobial resistance. MRSA nasal swabs offer a reliable, validated tool for reducing the use of these therapies, providing a high negative predictive value when administered with appropriate procedure and timing. The purpose of this study is to evaluate the impact of a pharmacist-driven MRSA nasal swab screening and de-escalation protocol on the reduction of anti-MRSA therapy in hospitalized patients with known or suspected pneumonia.

**Methods:**

This retrospective review will be conducted at Firelands Regional Medical Center in Sandusky, Ohio. The review will compare patients from a pre- and post-protocol implementation period. This protocol allows pharmacists to order nasal polymerase chain reaction tests (PCR) that detect MRSA, facilitating antibiotic de-escalation in patients with known or suspected pneumonia that are being empirically treated with anti-MRSA therapy. Data on treatment duration will be collected from patient charts via electronic medical records. Inclusion criteria consist of hospitalized patients ≥ 18 years old who received at least one dose of anti-MRSA therapy for known or suspected pneumonia. Exclusion criteria include the use of anti-MRSA therapy for >48 hours prior to nasal swab administration, previously existing MRSA nasal swab test performed within the previous 14 days, or confirmed MRSA in respiratory or nasal cultures within the previous 90 days. The primary outcome is the total days of anti-MRSA therapy pre- and post-protocol implementation. Secondary outcomes include total doses of anti-MRSA therapy administered and total cost, both direct and indirect, associated with the use of anti-MRSA therapy administered.

**Results:**

Results will be presented at the Ohio Pharmacy Residency Conference in May 2025.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Residency Conference in May 2025.

**Invasive Fungal Infection Prophylaxis with Posaconazole:**

**Promoting Prescribing and Streamlining Access**

Sophia Freeman, PharmD, MPA – PGY1 Pharmacy Resident, St. Elizabeth Healthcare, KY

Ana Blewett, PharmD, BCOP; Kristina Hesse, PharmD, BCPS, BCOP; Kathryn McKinney, PharmD, MS, BCPS; Chris Clifton, PharmD, LDE; Stephen Hodge, PharmD; Holly Laux, APRN; Miguel Islas-Ohlmayer, MD

**UAN:** 0048-0000-25-051-L01-P

**Learning Objectives:**

1. Discuss the importance of adequate fungal prophylaxis in patients with acute myeloid malignancies undergoing treatment.
2. Review the impact of a quality improvement project on institutional prophylactic posaconazole prescribing rates for eligible patients.

**Purpose:**

Patients with acute myeloid leukemia (AML), acute promyelocytic leukemia (APL), and myelodysplastic syndrome (MDS) undergoing treatment often experience prolonged durations of neutropenia. This immunosuppression greatly increases the risk of invasive fungal disease. Posaconazole is recommended by the National Comprehensive Cancer Network® (NCCN®) as a ‘Category 1, Preferred treatment option for fungal prophylaxis in neutropenic AML and MDS patients.’ Posaconazole has demonstrated superiority over fluconazole and itraconazole for prevention of invasive fungal infections in clinical trials. Due to numerous systemic barriers, 35% of eligible malignant hematology patients at St. Elizabeth Healthcare (SEH) received posaconazole for fungal prophylaxis in the past 5 years. We aimed to increase the rate of posaconazole prescribing in AML, APL, and MDS patients receiving treatment at SEH by 50% by April 2025.

**Methods:**

In this quality improvement (QI) project, we identified rate limiting steps in posaconazole prescribing and clarified fungal prophylaxis treatment considerations for AML, APL, and MDS patients undergoing treatment at SEH. Initial process mapping was guided by a series of interviews with personnel involved in hematology and oncology transitions of care including prescribers, clinical pharmacists, and nurses. After determining how posaconazole is prescribed and initiated for patients, core aspects were organized in a fishbone diagram. Comparative significance of barriers to posaconazole prescribing were illustrated using a Pareto chart. QI strategies were developed and organized by level of effort and potential impact using a priority matrix. Finally, we utilized statistical control process charts (SPC) to compare posaconazole prescribing rates pre- and post-QI implementation to evaluate efficacy.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Cost Savings Analysis of Implementing a Pharmacy-Managed DOAC Service in a Community Hospital**

Chelsea Fuller, PharmD - PGY2 Ambulatory Care Pharmacy Resident at St. Elizabeth Healthcare

Emma Sapp, PharmD, BCACP; Katelyn Bell, PharmD, BCACP

**UAN:** 0048-0000-25-052-L04-P

**Learning Objectives:**

1. Assess the eligibility of patients with non-valvular atrial fibrillation for anticoagulation therapy in accordance with 2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management for Atrial Fibrillation
2. Describe the labor costs compared to the profit from DOAC prescriptions and cost savings to the health system associated with preventing strokes in nonvalvular atrial fibrillation patients.

**Purpose:**

According to Joint Commission guidelines, a protocol is needed to manage risks associated with anticoagulant therapy, specifically with Direct Oral Anticoagulants (DOACs). St. Elizabeth Healthcare currently has an anticoagulation clinic, but it only manages warfarin (Coumadin), leaving a gap for DOAC patients. Currently, there are no specific parameters regarding which provider specialties are allowed to prescribe a DOAC. A pharmacist-run DOAC clinic pilot workflow was created to initially support 5 Cardiology providers. There is an opportunity to expand the DOAC clinic service to a broader patient population to ensure patients at high risk for thrombotic events in the system are on the appropriate dose of DOAC based on patient specific factors, are monitored appropriately and can access DOAC therapy. A study completed by the Veteran Affairs showed that when pharmacists oversee DOAC dosing there was a significant reduction in inappropriate dosing, bleeding events and incidence of stroke.  This project will aim to determine if the clinical benefit seen with a pharmacist-run DOAC clinic is accompanied by a financial benefit. The partnership with St. Elizabeth Healthcare retail pharmacies will provide the convenience of delivery to our patients and the cost savings of 340B drug pricing.

**Methods:**

This project will evaluate nonvalvular atrial fibrillation patients enrolled in the St. Elizabeth DOAC clinic from 2/1/24 to 3/1/25 to determine return on investment. The calculation will use the ratio of profit margin to pharmacist cost. Time spent with each patient is documented by the pharmacist to justify the need for an additional pharmacist. The ROI numerator comes from cost savings (including 340B), profit margin, and time spent on patient care. This data will be extrapolated to estimate the potential financial benefit to the health system for patients with nonvalvular atrial fibrillation who are not currently anticoagulated (excluding pregnant patients, those in hospice care, post-Watchman procedure, or with a history of intracranial hemorrhage).

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference

**Assessing the Impact of Different Hydrocortisone Dosing Strategies in Septic Shock: Days on Vasopressors**

Vincent Gao, PharmD – PGY1 Pharmacy Resident at Mercy Health Fairfield Hospital

James Sanders, PharmD, BCPS

**UAN:** 0048-0000-25-053-L01-P

**Learning Objectives:**

1. Review current SSC guideline recommendations for hydrocortisone use in septic shock
2. Explain the pathophysiology of septic shock and the mechanism of action of hydrocortisone
3. Discuss the impact of high versus low dose hydrocortisone on vasopressor requirements in septic shock
4. Compare outcomes between 50 mg q6h vs. 100 mg q8h hydrocortisone regimens

**Purpose:**

At Mercy Health Fairfield Hospital, providers have ordered both high and low dose hydrocortisone in the medical intensive care unit (MICU) and cardiovascular intensive care unit (CVICU) in the setting of septic shock refractory to fluids and two or more vasopressors. Per the 2021 Surviving Sepsis Campaign (SSC) guidelines, the use of hydrocortisone is considered a weak recommendation dosed at 200 mg/day given as 50 mg intravenously every 6 hours or as a continuous infusion. However, more recent literature has suggested its benefits in septic shock sooner- no longer waiting for unresponsiveness to fluid and moderate-to-high dose vasopressor therapy.

**Methods:**

This IRB-approved retrospective study looked adult patients who were admitted to the MICU or CVICU with septic shock initiated on hydrocortisone and vasopressor therapy. The objective was to evaluate the efficacy of different hydrocortisone dosing strategies by comparing Group A low-dose (50 mg every 6 hours) versus Group B high-dose (100 mg every 8 hours). The primary outcome was the number of days on vasopressors while on hydrocortisone. Secondary outcomes include days on mechanical ventilation and occurrence of hyperglycemia.

**Results:**

Total vasopressor duration did not significantly differ between group A or B (4.94 ± 5.02 vs. 3.78 ± 1.99 days, p=0.205). However, there was a trend toward a shorter duration of vasopressor use while titrating hydrocortisone and at therapeutic doses in Group B compared to Group A (2.22 ± 0.97 vs. 3.18 ± 1.98 days, p=0.056). There were no titration doses required in Group B, whereas one patient in Group A required re-initiation of hydrocortisone at 50 mg every 12 hours for six doses. Mechanical ventilation duration was comparable between groups (2.94 ± 3.75 vs. 2.33 ± 1.94 days, p=0.295). Hyperglycemia was more frequently observed in Group B (77.78%) compared to Group A (64.71%), despite both groups having a similar prevalence of diabetes. However, in both groups, only one patient required initiation of an insulin infusion due to hyperglycemia.

**Conclusions:**

Hydrocortisone dosing frequency did not significantly impact total vasopressor duration, but the high dose regimen showed a trend toward faster vasopressor weaning without the need for titration or re-initiation. Future studies with larger number of patients should be utilized to assess significance between hydrocortisone dosing strategies and vasopressor duration as well as in septic shock reversal.

**Incidence of Altered Mental Status in Patients Receiving Cefepime Therapy Stratified by Age**

Dan Giller, PharmD PGY1 Pharmacy Resident at St. Elizabeth Healthcare, Edgewood, KY

Betty Pierce, PharmD, BCPS; Matthew Weaver, PharmD; Chad Harvey, PharmD, BCIDP

**UAN:** 0048-0000-25-054-L01-P

**Learning Objectives:**

1. Describe the potential mechanism behind cefepime-induced neurotoxicity.
2. Evaluate the potential risk of altered mental status in patients with advanced age on cefepime therapy.

**Purpose:**

Studies suggest cefepime as a cause of neurological complications, including altered mental status, seizures, myoclonus, and psychosis, more often than other anti-Pseudomonal agents. However, most of the supporting evidence is from case reports and case series. Diminished renal function has been shown to be a risk factor for developing altered mental status, though it is unclear if other patient-specific risk factors may contribute. This study's objective is to determine if age is a risk factor for developing altered mental status with cefepime therapy.

**Methods:**

This study has been approved by St. Elizabeth Healthcare’s Institutional Review Board. This multicenter, retrospective study was conducted at a community-based health system to evaluate rates of altered mental status in adults receiving three or more days of cefepime. Patients will be included in reverse chronological order between May 1, 2024, to August 1, 2024. Exclusion criteria included administration of antipsychotic medications prior to cefepime initiation; administration of sedating medications during cefepime therapy; admitting diagnosis of altered mental status; and presence of altered mental status at baseline as defined by delirium, seizure, encephalopathy, and/or dementia. The primary outcome will be incidence of altered mental status in patients receiving cefepime who are less than 65 years of age compared to patients who are at least 65 years of age. Baseline demographics and data points to be collected include the following: age, gender, height, weight, serum creatinine, cefepime dose, cefepime duration, documentation of pharmacist intervention, admission unit, admission diagnosis, diagnosis of type 2 diabetes mellitus, concurrent fluoroquinolone and/or corticosteroid use, and documentation of new onset altered mental status. Statistical analyses will include a Chi-square or Fischer’s exact test to assess the primary outcome along with a multivariate regression analysis to assess for other independent risk factors for developing altered mental status.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

**A Retrospective Analysis of Pharmacist Interventions Conducted to Close Healthcare Effectiveness Data and Information Set (HEDIS) Gaps​**

Amanda Gilliland, PharmD, The Ohio State University College of Pharmacy

Cara Hoyt, PharmD; Jennifer Seifert, MS, RPh, BCGP; Rebecca Lahrman, PharmD, MS, BCACP​

**UAN:** 0048-0000-25-055-L04-P

**Learning Objectives:**

1. Describe healthcare effectiveness data and information set (HEDIS) gaps
2. Discuss a pharmacist’s role in closing HEDIS gaps and their impact on patient care

**Purpose:**

The primary objective of this project is to describe and compare interventions being conducted by community pharmacists to assist in successfully closing HEDIS gaps. HEDIS measures are a set of measures established by the National Committee for Quality Assurance and function as a performance improvement tool for health plans.  Within these measures, some pertain to medication management and when a patient’s medications are not optimized, this is a care gap. Some health plans partner with pharmacists through payer contracts to close these gaps. and ensure patients have access to medications to manage their disease states. By looking at four specific interventions, utilized to close six identified HEDIS gaps, it can be determined which interventions close gaps most effectively. This information will be beneficial for patients and pharmacists; patients can obtain optimized care goals sooner while pharmacists can incorporate a sustainable service into patient care.​

**Methods:**

This study was a retrospective analysis of pharmacist interventions conducted in patients who had a reported HEDIS gap. This data, provided in compliance with a data use agreement, was collected by CPESN and voluntarily provided by independent pharmacies in Texas throughout 2023. Interventions were completed based on HEDIS gaps reported for one of the following encounter reasons: statin gap, DM statin gap, antipsych gap, A1c gap, AMM acute gap, and AMM chronic gap. Specific interventions were assessed including medication reconciliation, medication synchronization, promotion of using pill dose dispenser, and private home delivery booking. All encounters and interventions are reported through a standard documentation template, an eCare plan. Descriptive and inferential statistics were completed to evaluate the interventions which were used most often to close HEDIS gaps. The goal was to determine which interventions pharmacists can use to optimize care for patients. ​

**Results:**

Final results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Final conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Assessing Rates of Inappropriate Aspirin Use and the Impact of a Pharmacist Led Deprescribing Initiative**

Alexandra Goldman, PharmD PGY1 Pharmacy Resident at The Jewish Hospital – Mercy Health

Shayla Koester, PharmD, BCPS; Carolyn Zeeman, PharmD, BCACP

**UAN:** 0048-0000-25-056-L01-P

**Learning Objectives:**

1. Review current recommendations for the use of aspirin in primary prevention
2. Assess rates of inappropriate aspirin use in patients on warfarin
3. Assess rates of pharmacist led deprescribing of aspirin in patients without an indication for use

**Purpose:**

Low-dose aspirin has been used for primary and secondary prevention of atherosclerotic cardiovascular disease (ASCVD) for over 70 years because of its irreversible antiplatelet properties. However, newer data suggests using aspirin for primary prevention may cause more harm than benefit, especially in combination with anticoagulation. As a result, the 2019 ACC/AHA guidelines for primary prevention of ASCVD were updated to recommend against aspirin use in those over the age of 69 years or with an increased risk of bleeding, including concurrent anticoagulation. Additionally, valve guidelines now recommend long-term aspirin use with older-generation valves and On-X mechanical valves only. Many patients enrolled in Mercy Health Medication Management Clinics continue to be on aspirin with warfarin despite these changes in guideline recommendations.

**Methods:**

Patients managed by Mercy Health Medication Management Clinics in southwestern Ohio (SWOH) were enrolled if they were on aspirin and warfarin and screened via chart review for appropriateness of aspirin therapy. Appropriate indications included a history of ASCVD or On-X valve placement. A telephone encounter was created in the electronic health record for those identified as inappropriately taking aspirin and the provider was contacted with the recommendation to discontinue aspirin. If the provider was agreeable, the patient was then contacted by the pharmacist to discuss the change. If a patient was unable to be reached, the clinic was notified for follow up with subsequent INR visits.

**Results:**

There were 409 patients enrolled in medication management clinics within SWOH on both aspirin and warfarin. Of these, 58 (11.7%) patients were identified as inappropriately taking aspirin. Providers responded on 53 (91.4%) encounters after an average of 1.7 contact attempts. Of these, 36 (67.9%) patients were approved for discontinuation.

**Conclusions:**

Most patients on concurrent aspirin therapy followed by a pharmacist for anticoagulation management have an appropriate indication. Of the 11.7% inappropriately taking aspirin, just over two-thirds were approved by a provider to match guideline recommendations. Most medication continuations were due to provider preference for mechanical heart valve maintenance despite current guideline recommendations. Most patients were agreeable to discontinuing therapy after discussing the risks and limited benefits with a pharmacist.

**An Evaluation of Venous Thromboembolism Prophylaxis in Solid Tumor Ambulatory Oncology Patients**

Alexander Goodridge, PharmD - PGY2 Oncology Pharmacy Resident, OhioHealth – Riverside Methodist Hospital; Kara Osborne, PharmD, BCOP; Mark Zangardi, PharmD, MS, BCOP

**UAN:** 0048-0000-25-057-L01-P

**Learning Objectives:**

1. Discuss the background around the use of VTE prophylaxis in ambulatory oncology patients
2. Review current literature regarding VTE prophylaxis in solid tumor ambulatory oncology patients
3. Evaluate current institutional practice in regard to prophylaxis prescribing and event occurrence

**Purpose:**

Venous thromboembolism events (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE), is a leading cause of mortality in oncology patients. Patients with cancer have a significantly increased risk of VTE, which is amplified further by chemotherapy. Despite the current clinical guidelines recommending consideration of VTE prophylaxis for ambulatory oncology patients with a Khorana score ≥2, studies show a low prescribing rate, resulting in increased risks of death, delayed treatments, and higher healthcare costs. This study aimed to evaluate the current prescribing rates of VTE prophylaxis for ambulatory oncology patients with solid tumors at OhioHealth.

**Methods:**

A retrospective chart review, evaluating the use of VTE prophylaxis in solid tumor oncology patients diagnosed between January 2023 – June 2024. This review focused on the prescribing of VTE prophylaxis in this patient population in correlation to the Khorana score and corresponding risk category. The study compared the rates of VTE prophylaxis prescribed in relation to each of the Khorana risk score categories, primary tumor locations, and treatment type. This review also evaluated the rates of VTE occurrence within the solid tumor cancer population, comparing these results to the estimated risk provided by Khorana risk scores.

**Results:**

Of the 500 patients that were evaluated for this study, 17 (3.4%) were prescribed prophylaxis against VTE. Patients receiving systemic anticancer therapy (n=258) were more likely to be prescribed prophylaxis compared to those not prescribed systemic therapy (5.4% vs. 1.2%) (p=0.01). In the overall population, 36 VTE events were identified (7.2%), only 1 VTE event occurred while a patient was prescribed prophylaxis. There was a significant difference in the higher Khorana score patients, in regards to experiencing a VTE event more frequently (p<0.001).

**Conclusions:**

Ultimately, our study found that there is a low rate of prescribing for VTE prophylaxis in the study population. The study was limited in that we only assessed 500 patients, and a vast majority of the patients were considered lower risk. The VTE event rate of 7.2% does show a need for continued education and ultimately prescribing to become a more common practice in this patient population. Based on the findings of this study, we recommend adding Khorana score evaluation into the ambulatory workflow within OhioHealth, and consideration of prophylaxis for patients with scores ≥2.

**Marijuana Use and Perceived Effects on Chronic Medical Conditions in an Internal Medicine Clinic**

Rebecca Grand, PharmD – PGY1 Pharmacy Resident at Summa Health System

Michelle Cudnik, PharmD, BCACP; Ally Schrock, PharmD, BCPS; Adrienne Wolfe, MD

**UAN:** 0048-0000-25-058-L03-P

**Learning Objectives:**

1. Describe the change in usage of marijuana since legalization for recreational use
2. Evaluate chronic medical conditions where patients’ have a perceived benefit from marijuana

**Purpose:**

In the state of Ohio, medical marijuana use was legalized in 2016 and subsequently legalized for recreational use in 2023. This quality improvement (QI) project aimed to evaluate patients’ perceived benefit from marijuana on their chronic medical conditions and the change in usage of marijuana since legalization of recreational use.

**Methods:**

This single-center, retrospective QI project identified patients managed by the Internal Medicine Clinic (IMC), who endorsed utilizing marijuana and were seen during the study period. A paper survey was provided to all patients seen during the study period. The primary outcome was the proportion of patients perceiving benefit from marijuana for a chronic medical condition. Key secondary outcomes included overall rate of usage, documentation of marijuana use in the electronic medical record (EMR), history of psychiatric hospitalization, and patient reported side effects of marijuana use. Patients were excluded if they were less than 18 years old or declined the survey.

**Results:**

Surveys were given to 269 patients to complete. Of these surveys, 106 (39%) endorsed using marijuana and 92 (34%) were completely filled-out. Nearly three-quarters (74.5%) reported that marijuana helps their comorbid conditions, 17.9% reported it neither helps nor worsens, and 1.8% reported their marijuana usage worsens their comorbid conditions. Majority of patients (76%) had EMR documentation about their marijuana use. Most patients did not experience a psychiatric hospitalization (93%). The most common patient-reported side effects included paranoia (10%) and memory loss (7%), although most patients reported experiencing no side effects (72%).

**Conclusions:**

Most patients who use marijuana reported a perceived health benefit. This project found that marijuana use has increased since legalization with 39% of patients endorsing marijuana use, compared to a previous project’s finding of 32%. Most patients did not experience a psychiatric hospitalization nor report significant side effects. Marijuana use is documented in the EMR most of the time but limited by available space for detailed documentation. This data supports that providers need additional education regarding identification, awareness, and engagement with patients using marijuana to improve their care.

**Implementation of Clinical Pharmacy Services in the Intensive Care Unit to Increase Sedation Compliance**

Brenna Gross, PharmD, PGY1 Pharmacy Resident Southwest General Health Center

Kyle Gustafson, PharmD, BCCCP; Cara Bullock, PharmD, BCPS; Jennifer Remington, PharmD, BCCP

**UAN:** 0048-0000-25-059-L01-P

**Learning Objectives:**

1. Review current recommendations for sedation in mechanically ventilated, critically ill patients.
2. Assess the impact of pharmacist intervention on sedation compliance.

**Purpose:**

The Society of Critical Care Medicine clinical practice guidelines for prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption (PADIS) in adult patients in the intensive care unit (ICU) recommend using dexmedetomidine or propofol first line for sedation in the ICU. Previous literature shows that benzodiazepines, when used for sedation in mechanically ventilated patients, worsen clinical outcomes including increases in both time on the ventilator and ICU length of stay. The purpose of this study is to assess the impact of pharmacist intervention on guideline compliance for sedation of mechanically ventilated patients in a mixed population, open-ICU at a medium sized community hospital.

**Methods:**

This quasi-experimental, quality improvement, bi-directional cohort study will take place at Southwest General ICU. Patients admitted to the ICU who are mechanically ventilated will be evaluated in two cohort groups. Pre-intervention cohort population will be retroactively assessed between February 1st, 2023 to March 31st, 2023. Data will be collected through medical record review and will include: sedative drug(s) used, history of relevant preexisting conditions, Richmond agitation-sedation scale (RASS) scores, critical pain observation tool (CPOT) scores, and total time on a ventilator. Data collection for the post intervention group will take place February 24th, 2025 to March 21st, 2025 and will include the same data as the pre-intervention cohort. For the post intervention group, a standardized set of questions will be used to assess sedation compliance on mechanically ventilated patients in the ICU. If therapy can be optimized, appropriate recommendations will be made to the provider and whether or not the intervention was accepted will be recorded. The primary outcome of this study is to assess impact of pharmacist intervention on compliance with PADIS guidelines for sedation.

**Results:**

Data analysis is on-going and will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Trastuzumab deruxtecan (Enhertu) efficacy and safety in gynecologic malignancies: a single academic medical center experience**

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Dr. Casey Cosgrove, MD; Tyler Dickerson, PharmD, BCOP; Eric Fela, PharmD, BCOP; Ambar Khan, PharmD, BCOP

**UAN:** 0048-0000-25-060-L01-P

**Learning Objectives:**

1. Explain T-DXd’s mechanism of action in HER2-expressing gynecologic malignancies.
2. Identify the common side effects associated with T-DXd treatment.
3. Assess T-DXd’s efficacy and safety based on clinical outcomes.

**Purpose:**

Human epidermal growth factor receptor 2 (HER2) is a transmembrane protein encoded from the ERBB2 gene, a member of the epidermal growth factor receptor (EGFR) family of receptor tyrosine kinases. In cancer cells, ERBB2 gene amplification leads to overproduction of the HER2 protein permitting uncontrolled cell growth. The level of HER2 expression is determined by immunohistochemistry (IHC), which assesses intensity of membrane staining on tumor cells. Over expression of HER2 in patients have been represented by IHC or gene amplification in ovarian (11-66%), uterine serous (25-30%) and cervical (5-17%) cancers. Trastuzumab deruxtecan-nxki (T-DXd) is an antibody drug conjugate (ADC) that binds to HER2 on tumor cells, internalized and its peptide linker is cleaved to release a cytotoxic payload causing DNA damage and cell death via inhibition of topoisomerase I. The FDA granted accelerated approval for use in patients with HER2 IHC 3+ expressing unresectable or metastatic solid tumors who have received prior systemic treatment and lack satisfactory alternative options.6 In response to FDA approval and NCCN guideline updates, usage of T-DXd has notably increased for recurrent gynecologic malignancies. While T-DXd is a promising treatment, risks include nausea, vomiting, cardiotoxicity, pulmonary toxicity, and bone marrow suppression. The potential for greater toxicity with T-DXd in a real-world patient population compared to a clinical trial population remains uncertain. The objective of this study was to evaluate the efficacy and safety of T-DXd in the treatment of recurrent gynecologic malignancies (e.g., endometrial, cervical, ovarian) by using real-world data from patients treated at a single academic medical center. The evaluation focused on clinical outcomes such as response rates, progression-free survival, and the incidence of adverse events.

**Methods:**

A retrospective cohort study was conducted via chart review at The James Cancer Hospital at The Ohio State University. Adult patients with a diagnosis of a recurrent gynecologic malignancy were included in the efficacy analyses if they received at least 2-3 doses of T-DXd therapy with follow-up scans. The safety analysis included patients that received at least one dose of T-DXd. Patients with active secondary cancer, pregnant, incarcerated, or have a history of previous administration of a topoisomerase 1 inhibitor containing ADC were excluded. Descriptive statistics will be reported, with Kaplan Meier methods used for time-to-event outcomes.

**Results:** Data analysis is ongoing. Results will be available at the time of presentation.

**Conclusions:** This study aims to assess the efficacy and safety of T-DXd in patients with recurrent gynecologic malignancies.

**Assessing Pharmacist Impact in Reducing Anticholinergic Burden in the Post-acute and Long-term Care Setting**

Hope Hafner, PharmD, PGY1 Community Pharmacy Resident at the University of Cincinnati

Alicia Brunemann, PharmD; Stephanie Fenwick, PharmD; Casondra Seibert, PharmD

**UAN:** 0048-0000-25-061-L04-P

**Learning Objectives:**

1. Explain the importance of reducing anticholinergic burden in older adults residing in post-acute and long-term care (PALTC) facilities.
2. Examine the role of consultant pharmacists in identifying patients with a high anticholinergic load and evaluating the outcomes of their medication recommendations.
3. Evaluate the pharmacist's impact on reducing anticholinergic burden and the effectiveness of their interventions based on study outcomes like ACB score changes and recommendation acceptance rates.

**Purpose:**

Anticholinergic burden (ACB) is a significant concern for geriatric patients, and those residing in post-acute and long-term care (PALTC) facilities. ACB refers to the cumulative impact of using one or more medications with anticholinergic properties. These medications are commonly used in older adults to treat various medical conditions. According to a 2019 review of anticholinergic drugs in the geriatric population by López-Álvarez et al., up to 44.9% of elderly patients receive anticholinergic medications. Moreover, the same review determined that in people with Parkinson’s dementia, the prevalence of anticholinergic medication use is especially high at 81.3%. These medications can host side effects including cognitive impairment, dry mouth, urinary retention, constipation, increased heart rate, and blurred vision. The 2023 Beers criteria advises against using multiple anticholinergic medications due to the increased risk for falls, delirium, and cognitive decline in this population. While some patients may benefit from anticholinergic medications, their use requires careful consideration. Several scales exist to assess ACB, yet they often fail to consider drug-drug interactions, are not interchangeable, and require application by healthcare team members.

**Methods:**

This institutional review board-approved study aims to evaluate pharmacist impact on ACB in the PALTC setting. Participating consultant pharmacists will retrospectively assess patients meeting inclusion criteria to determine the most commonly used medications with anticholinergic properties, identify the patients with high anticholinergic load, and review senior care pharmacist ACB recommendation outcomes. Patients included must be 65 years or older and take at least one medication with anticholinergic properties. In addition to pharmacist impact, other outcomes include average ACB score, rate of anticholinergic medication use, number of patients with active anticholinergic symptoms at the time of review, and rate of rationale provided for declined recommendations.

**Results:**

Research in progress.

**Conclusions:**

Research in progress.

**Outpatient Antibiotic Prescribing Patterns for Uncomplicated Acute Otitis Media in Pediatric Patients**

Erica S. Hamilton, PharmD – PGY1 Pharmacy Resident at Mercy Health St. Vincent Medical Center, Toledo, Ohio

Samiyah Bhatti, PharmD, BCPS; Deidre Burger, PharmD, MBA, BCPS; Holly Worst, PharmD, MBA

**UAN:** 0048-0000-25-062-L01-P

**Learning Objectives:**

1. Review guideline recommendations for antibiotic selection and duration in the treatment of acute otitis media.
2. Discuss antimicrobial stewardship opportunities to decrease excessive antibiotic exposure.

**Purpose:**

Acute otitis media (AOM) is a middle ear infection that 60% of children experience by age 3. The American Academy of Pediatrics (AAP) recommends high-dose amoxicillin as the first-line option for AOM in most patients. Antibiotic duration of 5-7 days is recommended in children 2 to 12 years of age with uncomplicated AOM. “Safety-net antibiotic prescriptions” (SNAPs) are proposed as a practical approach to delayed antibiotic prescribing. Optimizing antibiotic use in uncomplicated AOM can help curb resistance and prevent unpleasant side effects from unnecessary antibiotics.

**Methods:**

This retrospective study analyzed antibiotic prescribing patterns for children aged 2–12 with uncomplicated AOM at four outpatient pediatric offices from January to July 2024. Exclusions were concurrent bacterial infections, tympanostomy tubes, or recent antibiotic use. The primary endpoint was antibiotic selection and dosing per AAP AOM guidelines. Secondary endpoints included therapy duration, SNAPs, and treatment outcomes between 7-day and ≥10-day courses. Fisher’s exact test was used to assess treatment outcomes.

**Results:**

A total of 250 charts were reviewed, and 218 patients met inclusion criteria. The mean age was 5.06 years, with range of 2-12, and 44.95% were male. The most common antibiotic prescribed was amoxicillin (n=177, 81.2%), and 59.8% of amoxicillin doses aligned with guideline recommendations. The mean duration of therapy was 9.49 days, with 84.86% of prescriptions being for 10 days. SNAPs were rarely utilized, with only one instance being identified.

**Conclusions:**

Opportunities were identified for future initiatives aimed at promoting antimicrobial stewardship, including reducing the duration of antibiotic therapy for AOM, optimizing antibiotic dosing in accordance with guideline recommendations, and promoting use of SNAPs.

**Gabapentinoids in Chronic Kidney Disease: A Closer Look at Respiratory Risks**

Lauren Harven, PharmD, PGY1 Pharmacy Resident at Henry Ford St. John Hospital

Christopher Giuliano, PharmD; Renee Paxton, PharmD

**UAN:** 0048-0000-25-063-L01-P

**Learning Objectives:**

1. Describe the potential respiratory risk of gabapentinoid use in patients with chronic kidney disease (CKD).
2. Assess the association between the use of gabapentinoids as part of a multimodal pain regimen in patients with CKD and respiratory depression.

**Purpose**:

In response to reports of respiratory depression with gabapentin, the FDA issued a warning in 2019 about its use with opioids and CNS depressants. Observational studies have shown increased risks of COPD exacerbations, altered mental status, falls, and respiratory depression with gabapentin use, especially in postoperative patients and those using opioids or benzodiazepines. There is a gap in the literature assessing the association between renal dysfunction and respiratory depression in patients using gabapentinoids. Therefore, the purpose of this study is to evaluate the use of gabapentinoids in hospitalized patients with renal dysfunction and its association with respiratory depression and altered mental status.

**Methods:**

This is a multi-center, historical cohort study of adult patients evaluating gabapentinoid use as part of a multimodal pain regimen compared to no gabapentinoid use in patients with CKD stage III, IV, or V. Patients were excluded if they were admitted to the ICU; had a diagnosis of pulmonary hypertension, hepatic encephalopathy; pulmonary embolism, pulmonary edema, transfusion-associated circulatory overload, acute respiratory distress syndrome, pneumonia; or other acute respiratory conditions. They were also excluded if a gabapentinoid was received for epilepsy, generalized anxiety disorder (GAD), or restless leg syndrome. The primary outcome was the incidence of respiratory depression. Respiratory depression was defined as a composite outcome that included need of high flow nasal cannula, bilevel positive airway pressure (BIPAP), mechanical ventilation, escalation of oxygen requirement, need for naloxone or flumazenil administration, and a rapid response or code blue initiation resulting in pulseless electrical activity (PEA), asystole, or hypoxia. Secondary outcomes included the incidence of altered mental status, documented fall, and individual components of the composite outcome. To detect this difference between groups using a power of 80% and an alpha of 0.05, 160 patients per group were needed. Descriptive statistics will be used to summarize group characteristics, with appropriate tests (t-test, Mann-Whitney U, Kruskal-Wallis, chi-squared) for univariable analysis, logistic regression for the primary endpoint, and sensitivity analysis using propensity score matching, and an alpha of 0.05 for statistical significance.

**Results:**

Data collection is ongoing, analysis is pending completion of data collection. Results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusion:**

To be presented at the Ohio Pharmacy Residency Conference.

**The impact of system standardization on intravenous surgical prophylaxis antibiotics in hysterectomy and colorectal surgeries**

Mehreen Hasan, PGY1 Pharmacy Resident at Corewell Health Beaumont Troy Hospital;

Sandra Hartnagle, PharmD, BCPS, BCIDP; Sapna Shah, PharmD, BCPS

**UAN:** 0048-0000-25-064-L01-P

**Learning Objectives:**

1. Describe the importance of preventing surgical site infections
2. Explain the significance of selecting appropriate antibiotic prophylaxis for patients

**Purpose:**

Hysterectomy and colorectal surgeries can expose patients to various bacterial organisms which can increase their risk of surgical site infections. The most common pathogens include *Bacteroides fragilis, Escherichia coli*, and other obligate anaerobes. The institution’s policy and a statewide surgical collaborative recommend cefazolin plus metronidazole as the preferred prophylactic antibiotic regimen in colorectal and hysterectomy surgeries. However, patient allergies or physician preference may lead to utilization of alternative antibiotic therapy. In July 2024, our institution integrated into a new health system, leading to significant changes in electronic health records and clinical practices. This study aimed to determine whether these hospital system changes affected compliance with the statewide surgical collaborative recommendations.

**Methods:**

This study was an IRB-approved, single-center, retrospective chart review of electronic medical records. Patients included adults aged 18 and older who underwent colorectal or hysterectomy surgery at Corewell Health Beaumont Troy Hospital from January 1st, 2024 to December 31st, 2024 (excluding July 2024). Patients who died intraoperatively or patients presenting with intra-abdominal infection prior to surgical intervention were excluded from the study. The appropriate perioperative antibiotic prophylaxis was determined utilizing criteria established by the statewide surgical collaborative. The primary outcome of this study was to evaluate whether system standardization improved compliance of antibiotic selection, dosing, and administration timing for perioperative antibiotic prophylaxis in hysterectomy and colorectal surgeries. The secondary outcomes were to characterize alternative antibiotics used, antibiotic allergies, and surgical site infection within 30- and 90-days post-surgery. Descriptive statistics were utilized to assess the data collected.

**Results:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Feasibility and Impact of Inpatient Pharmacist Daily Warfarin Monitoring**

Victoria Haupt, PharmD – PGY1 Pharmacy Resident at University Hospitals Parma Medical CenterKimberly Brandt, PharmD, BCCCP; Erin E. Laraway, PharmD, BCPS; ElainaMarie Grandinetti, PharmD

**UAN:** 0048-0000-25-065-L01-P

**Learning Objectives:**

1. Recall the appropriate monitoring parameters required for patients taking warfarin
2. Identify factors that can contribute to changes in international normalized ratio (INR)
3. Discuss the implementation and impact of a pharmacist warfarin monitoring service at University Hospitals Parma Medical Center (UH PMC)

**Purpose:**

Prior studies have demonstrated that pharmacists have a vital role in anticoagulation management for both outpatient and inpatient settings. Currently at UH PMC, there is not a collaborative practice agreement (CPA) that allows pharmacists to independently dose warfarin. The pharmacy department trialed a pharmacist warfarin monitoring service Monday through Friday from October to December 2024. The purpose of this study is to evaluate feasibility of implementing a CPA by assessing pharmacist workload, interventions made, recommendation acceptance by providers, and clinical impact on INR values.

**Methods:**

This is a retrospective, single-center cohort study from July to September 2024 (provider managed group) and October to December 2024 (pharmacist monitored group). The primary objective is to assess the feasibility of an inpatient pharmacy daily warfarin monitoring service. The feasibility outcomes that were analyzed are the total interventions made, acceptance of pharmacist recommendations by providers, and the average time spent per day and per patient per day required for monitoring warfarin therapy, documenting interventions, and communicating with providers. The secondary objective is to assess the impact of inpatient pharmacist daily warfarin monitoring and recommendations on clinical outcomes compared to a provider monitored group. The impact outcomes that were analyzed are percent time in INR range, number of critical INR levels of ≤1.7, ≥3.5 to <6, and ≥6, and if there were any major bleeding complications or thromboembolic events during the hospital stay. Descriptive statistics, chi square tests and a z-score were used to analyze the data.

**Results:**

A total of 190 interventions and 78 recommendations were made to providers. 89.74% of recommendations were accepted. The median time spent per day was 10 minutes (IQR 5-16) and per patient over the length of stay was 8 minutes (IQR 5-14). INR values were in range on average 45.35% of the time for the pharmacist monitored group and 48.94% of the time for the provider managed group (p value = 0.72). An INR was collected 89.77% of the time for the pharmacist group, whereas the provider group only collected an INR 86.88% of the time. The pharmacist monitored group had similar percentages of critical INR values as compared to the provider group. There were not any major bleeding complications or any thromboembolic events during hospital stay for both groups.

**Conclusions:**

The results of this study indicate that a CPA for pharmacy to dose warfarin would be feasible to implement and would likely be supported by providers. Clinical outcomes demonstrated similar safety and efficacy between the pharmacist monitored and provider managed groups.

**Resumption of Outpatient Medications in Emergency Department Psychiatric Emergencies**

Morgan Hayslip, PharmD – PGY1 Resident at Mount Carmel Health System

Mark Doles, PharmD, BCPS; James Batey, RPh; Samuel LaFollette, PharmD, BCPS; Kelly Wilson Holmes, PharmD; Ann Salvator, MS; Jasmine Kainth; Taiylor Karasewski; Sydney Porter

**UAN:** 0048-0000-25-066-L01-P

**Learning Objectives:**

1. Review current practices for medication reconciliation in the psychiatric patient population.
2. Analyze the impact of outpatient medication resumption on patients presenting to the emergency department (ED) with psychiatric emergencies.
3. Determine areas of further research for the process of psychiatric medication resumption in patients with psychiatric emergencies.

**Purpose:**

Patients with psychiatric emergency represent a significant portion of ED visits in the United States. Those awaiting inpatient psychiatric placement have longer ED lengths of stay (LOS) than patients with primarily medical or surgical concerns. The Joint Commission recommends initiating active treatment of underlying psychiatric illness, including restarting outpatient medications quickly, however current literature is lacking regarding the impact of medication resumption on ED LOS. This research project was designed to assess the impact of early resumption of outpatient psychiatric medicine on LOS in patients presenting to the ED with psychiatric emergency.

**Methods:**

A multi-center, retrospective chart review was conducted of patients with extended ED admissions (>24h) to 3 hospitals in central Ohio between 1/1/2022-6/30/2024. Inclusion criteria consisted of underlying psychiatric illness, current psychiatric medication, and ED admission due to psychiatric emergency. The primary outcome was ED LOS between patients whose outpatient psychiatric medications were restarted within 4h compared to after 24h or never resumed. Secondary outcomes included sitter use, restraint use, discharge disposition, and additional psychiatric medications received. This study received IRB approval.

**Results:**

250 patients met criteria for this study. 96 patients had medications resumed within 24h, 36 had medications resumed after 24h, and 118 never had medications resumed prior to discharge. Baseline demographics were similar between groups except patients in the <24h group were older (44.3 yrs vs 39.1 yrs, p=0.03), had more Medicare and less private insurance. Patients whose medications were resumed within 24h had a similar mean ED LOS as those resumed after 24h or were never resumed (47.7h vs 46.4h, p=0.98). In an analysis excluding patients whose medications were never resumed, those in the within 24h cohort (N=96) had a significantly shorter mean ED LOS than those after 24h (N=36) (47.7h vs 65.7h, p=0.0004).

**Conclusions:**

In patients whose psychiatric medications were resumed in the ED, early resumption vs late resumption resulted in a statistically significant 18h shorter ED LOS. Further research should strive to rapidly identify patients in whom medication resumption is indicated to help expedite resolution of psychiatric emergency.

**Implementation of a multifaceted initiative to decrease prescribing rates of antibiotics for asymptomatic bacteriuria in a community hospital**

Emily Hendershot, PharmD, PGY1 Pharmacy Resident at Aultman Alliance Community Hospital

Megan King, PharmD, BCACP; Thomas Rouzzo, PharmD; Nichole Thorne, PharmD;

Cameron Warner, PharmD; Kathryn Ensminger, PharmD Candidate

**UAN:** 0048-0000-25-067-L01-P

**Learning Objectives:**

1. Discuss the summary of recommendations from the Infectious Diseases Society of America (IDSA) guidelines for the treatment of asymptomatic bacteriuria (ASB)
2. Investigate efficacy of implementing a multifaceted initiative on antibiotic prescribing rates for ASB in a community hospital

**Purpose:**

Treatment of ASB with antibiotics directly contributes to antimicrobial resistance and emergence of multidrug resistant organisms. Previous studies have found a significant decrease in antimicrobial prescribing for ASB with implementation of education, stewardship, and laboratory interventions. The purpose of this study is to investigate prescribing practices of antibiotics for ASB and to implement interventions promoting antimicrobial stewardship within a community hospital.

**Methods:**

This retrospective quasi-experimental study will evaluate outcomes before and after implementation of a multifaceted initiative. Chart review will take place three months prior to (pre-intervention phase) and three months after (post-intervention phase) implementation of the initiative. The initiative includes an educational sheet for providers regarding upcoming changes to reflex urine cultures, automatic implementation of a new reflex urine culture protocol (elimination of reflex urine culture if urinalysis contains <10 WBC/hpf) at time of institutional switch to a new electronic health record software, a pocket guide of updated guideline recommendations distributed to providers, distribution of an ASB newsletter to prescribers and nursing staff, daily review of antimicrobial use for urinary tract infection treatment performed by a clinical pharmacist, and real time audit and feedback provided by a clinical pharmacist on interdisciplinary rounds. The primary objective is to decrease the number of patients treated with antibiotics. Secondary objectives include decreasing number of antibiotic doses received, total days of antibiotic treatment, positive *Clostridioides difficile* toxin results, patient length of stay, number of antibiotic discharge prescriptions, and cost associated with antibiotic treatment.

**Results:**

Final results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Final conclusions will be presented at the Ohio Pharmacy Residency Conference.

 **Pharmacist Versus Cardiologist Led Intervention: A Retrospective Study Comparing the Optimization of Quadruple Therapy in Heart Failure Patients with Reduced Ejection Fraction**

Sarah Herring, PharmD – PGY-1 Pharmacy Resident ProMedica Flower Hospital

Angelo Iachini, PharmD, BCACP; Taylor Lloyd, PharmD

**UAN:** 0048-0000-25-068-L04-P

**Learning Objectives:**

1. Describe the modified Optimal Medical Therapy (mOMT) score and what is considered an optimal score
2. Demonstrate how pharmacists have an impact on optimizing guideline directed medical therapy (GDMT) for patients with heart failure with reduced ejection fraction

**Purpose:**

Current guidelines highlight the four classes of medications that have been shown to decrease morbidity and mortality in patients with heart failure with reduced ejection fraction (HFrEF). While pharmacists have demonstrated success in optimizing guideline-directed medical therapy (GDMT), few studies with large sample sizes have directly compared their outcomes with general cardiology (GC). This study compares the effectiveness of pharmacist-led care versus GC in optimizing GDMT for patients with HFrEF. Using the modified Optimal Medical Therapy (mOMT) score, this study aims to compare the proportion of GDMT optimization achieved by pharmacists versus cardiologists.

**Methods:**

This retrospective cohort study is being conducted at ProMedica Health System, including 8 pharmacist-managed outpatient clinics and 10 cardiologist-led clinics across northwest Ohio and southeast Michigan from February 1, 2021 to December 31, 2023, with follow up through December 31, 2024. Eligible patients, aged ≥ 18 years with HFrEF (ejection fraction ≤40%), were managed by the Jobst Medication Therapy Management (MTM) clinic or ProMedica Physicians Cardiology (PPC). The primary outcome is the number of patients achieving an optimal mOMT score of 8, with the mOMT score serving as a standardized tool to assess GDMT optimization. Secondary outcomes include 6-month heart failure (HF) readmissions, change in left ventricular ejection fraction (LVEF), time to optimal mOMT score, number of visits with a cardiologist and/or pharmacist, time in between visits, number of patient assistance program (PAP) applications completed, and the number and type of interventions made by pharmacists, cardiologists, and external providers.

**Results:**

Data analysis currently in process. Will present results at the Ohio Pharmacy Residency Conference

**Conclusions:**

Data analysis currently in process. Will present conclusion at the Ohio Pharmacy Residency Conference

**A Community Pharmacy Collaborative Practice Agreement within an FQHC look-alike and its Impact on Healthcare Providers**

Levi Hill, PharmD, PGY-1 Community-Based Pharmacy Resident at The Ohio State University College of Pharmacy and Equitas Health

Jacquelyn Kissel, PharmD; Jennifer Seifert, MS, RPh; Phillip Pauvlinch, PharmD; Rebecca Lahrman, PharmD

**UAN:** 0048-0000-25-069-L04-P

**Learning Objectives:**

1. Describe a community pharmacist collaborative practice agreement (CPA) and its benefits to patient care.
2. Determine the value to healthcare providers and pharmacists of having a community pharmacist CPA.

**Purpose:**

Community pharmacies around the United States have implemented clinical services that operate under collaborative practice agreements (CPAs). Most commonly, these types of services include test-to-treat for Influenza and Streptococcal laryngitis, pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) to prevent HIV, and hormonal contraception. Currently, the literature does not discuss a CPA in a community pharmacy that covers multiple disease states, nor does it discuss overall impact on healthcare providers.

**Methods:**

Retrospective data from the pharmacy dispensing software and electronic health record from 02/01/24 to 01/15/25 was analyzed. The primary objective is to describe and quantify the usage of a community pharmacy collaborative practice agreement (Community CPA) at 5 community pharmacies integrated within FQHC look-alike practices. Prescriptions written by pharmacists at the practice site using the community CPA were included while prescriptions written by pharmacists using the clinic CPA were excluded. A survey of pharmacists and other providers within the health system was administered to determine the impact of the CPA. The survey assessed the effect of the CPA on the perceived improvement on medication access, patient safety, and workflow, as well as demographic data. Pharmacists and providers employed through or working at the practice site were included in this study while pharmacists and providers at other institutions were excluded.

**Results:**

The results of the study will be presented at the Ohio Pharmacy Resident Conference pending final IRB approval.

**Conclusions:**

The conclusions of the study will be presented at the Ohio Pharmacy Resident Conference pending final IRB approval.

**Hypertensive Hijinks: Implementation of an Emergency Department Hypertensive Emergency Order Panel**

Caleb Hoppe, PharmD – Parkview Regional Medical Center

Robert Beckett, PharmD, BCPS; Sarah Meeks, PharmD, BCCCP; Luke Keller, PharmD, BCCCP; Aaron Daseler, PharmD, BCCCP

**UAN:** 0048-0000-25-070-L01-P

**Learning Objectives:**

1. Discuss guideline updates for hypertensive emergencies
2. Evaluate order panel efficacy and identify improvement opportunities via case review

**Purpose:**

The 2024 American Heart Association guideline statement for inpatient hypertension emphasizes the appropriate treatment of true hypertensive emergencies while discouraging the improper management of asymptomatic hypertension. This statement highlights the need for institutions to reconcile formulary medications and provide clinical decision support for front-line providers, considering the physiological nuances of various hypertensive emergencies. Management of certain hypertensive emergencies also fall under the purview of accrediting bodies, based on underlying etiology. Ensuring providers have appropriate treatment recommendations is crucial for meeting institutional standards and providing timely care. The aim of this research was to develop an order panel for emergency medicine providers to manage various hypertensive emergencies. The hypothesis was that standardizing treatment based on indication would improve patient outcomes.

**Methods:**

An emergency department order panel for hypertensive emergency was created and deployed in November 2024. The order panel spans various disease states including aortic dissection, sympathetic crashing acute pulmonary edema, cerebrovascular accident, hypertensive renal failure, thrombotic microangiopathy, and preeclampsia. The aim of this analysis was to improve treatment efficiency of true hypertensive emergencies via optimum medication management. Emergency department providers were educated on the availability of the order panel for use. This research was designed as a retrospective cohort study and reformatted into a case series based on sample size. Patient demographics, vital signs, past medical history, diagnoses, medications administered, laboratory values, and prior to admission medications were gathered from the electronic medical record. The primary outcome of interest was efficacy in blood pressure reduction as defined by attainment of guideline directed blood pressure goals per indication, as applicable. Secondary outcomes of interest included time to drug administration, drug choice, drug dosing, and percent blood pressure reduction (from baseline) prior to emergency department discharge.

**Results:**

Final results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Final results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Impact of Provider Education on the Treatment of Asymptomatic Bacteriuria in the Emergency Department of a Rural Community Hospital**

William Hrivnak, PharmD, PGY1 Pharmacy Resident - Adena Regional Medical Center, Chillicothe OH

Alyssa Stidham, PharmD; Kenneth Knipp, PharmD; Cameron Howard, PharmD

**UAN:** 0048-0000-25-071-L01-P

**Learning Objectives:**

1. Compare urinary tract infection (UTI) and asymptomatic bacteriuria (ASB) and their appropriate treatments
2. Describe the design of a pharmacist-led educational program for emergency department providers and its impact on the inappropriate treatment of ASB
3. Discuss the implications of education and pharmacist intervention on the reduction of inappropriate ASB treatment

**Purpose:**

Asymptomatic bacteriuria (ASB) is a common finding among patients in the Emergency Department (ED). Studies have demonstrated that ASB was inappropriately treated in 82.7% of cases. The Infectious Diseases Society of America (IDSA) does not recommend treating ASB for most patients due to minimal benefit. Pharmacists may affect the rate of inappropriate prescribing of ASB through interventions that reduce the use of antimicrobials, which may lead to improved susceptibility and cost savings. The purpose of this study is to determine the impact of pharmacist education to ED providers in the incidence of antibiotic prescribing for patients with ASB.

**Methods:**

This is a retrospective, quality improvement study performed within the ED of a rural community hospital comparing the impact of pharmacist-led provider education on the prescribing of antibiotics for ASB in patients admitted to the ED from November 2023 to January 2024 (before implementation of education) to those admitted from November 2024 to January 2025 (post-implementation). Education will consist of both verbal and written educational materials presented to our ED providers during one-on-one training sessions. The primary outcome is the difference in the rate of inappropriate prescribing of antibiotics for ASB before and after pharmacist intervention. Secondary outcomes include the number of urinalyses ordered inappropriately, total days of antibiotic use, length of hospital stay for those admitted to an inpatient unit, and total cost avoidance for inappropriate treatment. Inclusion criteria includes the following: patients discharged from the ED or admitted to the hospital, 18 years and older, and presence of ASB as evidenced by bacteria in the urine upon urinalysis and/or urine culture with the absence of urinary tract infection (UTI) symptoms. Exclusion criteria include the following: less than 18 years old, pregnancy, absolute neutrophil count < 1500 cells per microliter, patients with any scheduled urologic procedure that carries the risk of mucosal damage, and patients needing antibiotics for a non-urological indication.

**Results:**

Results will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusions:**

Final conclusions will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Resolution of Alcohol Withdrawal Symptoms from Rescue Administration of Phenobarbital versus Benzodiazepines, as Determined by CIWA Scores**

 Kristyn Huizenga, PharmD, PGY1 Pharmacy Resident at Mount Carmel East Hospital, Columbus

Dawn Miller, PharmD, BCPS, BCCCP; Jordan DeWitt, Pharm D, BCPS, BCCCP; Rebecca Betz, PharmD; Scott Valentine, PharmD; Mark Doles, PharmD, BCPS

**UAN:** 0048-0000-25-072-L01-P

**Learning Objectives:**

1. Define severe alcohol withdrawal syndrome (AWS) and utilize the Clinical Institute Withdrawal Assessment for Alcohol, revised (CIWA-Ar) to assess the severity of clinical presentation.
2. Review the safety and efficacy of phenobarbital and benzodiazepines for inpatient severe AWS.
3. Explore patient specific factors that influence the management of severe alcohol withdrawal.

**Purpose:**

Alcohol use disorder (AUD) accounts for about 250,000 ER visits in America annually, and 25% of these will develop AWS. Severe AWS (CIWA-Ar>19) treatment options include front loading regimens or symptom-triggered benzodiazepines. Phenobarbital, a barbiturate, is an alternative therapy with benefits including dual mechanism of action and “self-tapering” pharmacokinetics. Choice of agent and dosing strategy should prioritize rapid resolution of symptoms to minimize consequences, such as delirium tremens (DT). This study hypothesizes patients who receive phenobarbital instead of benzodiazepines in response to a CIWA-Ar score of > 19 will have faster resolution of symptoms.

**Methods:**

This multi-center, retrospective chart review included adult inpatients at three central Ohio hospitals who had a documented CIWA-Ar score of > 19 from 1/1/22 to 9/1/24. Phenobarbital patients were matched 1:2 to benzodiazepine patients. The primary outcome was time to resolution of alcohol withdrawal symptoms, defined as a sustained CIWA-Ar <10. Secondary outcomes of interest included incidence of DT. A multivariable linear regression then evaluated for dose-dependent associations.

**Results:**

Sixty phenobarbital and 540 benzodiazepine patients were identified for analysis, then further matched for a final cohort of 180 patients. Baseline demographics were similar between these groups, patients were predominantly male (76%) with an average age of 47 years. Symptom severity was also similar with an initial CIWA-Ar score of approximately 22 in both groups. Time to resolution in phenobarbital patients was 46.7 ± 55.9 hours vs 61.1 ± 155.9 hours in benzodiazepine patients, p=0.31. Incidence of DT was 10% vs 15%, p=0.8. Multivariable linear regression predicted increasing phenobarbital doses significantly shortened the time to resolution of symptoms, while an increase in benzodiazepine dose significantly increased length of stay and did not lead to shorter resolution of symptoms.

**Conclusions:**

Initial administration of phenobarbital in response to a CIWA-Ar score >19 resulted in shorter time to resolution of withdrawal symptoms and lower incidence of DT, although these failed to meet statistical significance in this study. Our analysis also indicates that early administration of phenobarbital and minimizing benzodiazepine therapy may result in a reduction in length of stay, but phenobarbital dose optimization is needed to explore all suggested benefits. Future studies should prospectively evaluate standardized therapeutic dosing of phenobarbital as compared to benzodiazepines for severe AWS.

**Investigating the Cardio-Oncology Patient Population at a Single Oncology Site Health System to Determine the Need for Intervention**

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Joshua Cain, PharmD, BCOP; Michael Leifheit, PharmD, BCPS

**UAN:** 0048-0000-25-073-L04-P

**Learning Objectives:**

1. Identify cancer therapy that causes cardiotoxicity.
2. Review cancer therapy-related cardiac dysfunction, including current guideline recommendations for patient management.
3. Discuss the areas for improvement in the patient care process for the cardio-oncology population identified in a retrospective chart review at a single oncology site.

**Purpose:**

This study aims to analyze the cardio-oncology patient population and evaluate the incidence of cardiovascular toxicities, frequency of cardiac monitoring, and management of cardiac dysfunction related to cancer treatment. There will also be an investigation to assess whether interventions need to be added to patient care.

**Methods:**

This will be a retrospective, descriptive study conducted at a single oncology-site health system between June 1st, 2022, and May 31st, 2024. The electronic health records of patients with cancer who received at least 1 dose of a cardiotoxic intravenous anti-neoplastic and/or cardiotoxic intravenous immunotherapy will be reviewed during the study period. Data collection will include patient demographics, cancer diagnosis and treatment, risk factors for heart failure, new cardiac consultations, echocardiogram results, prescribed statin use, and hospitalizations due to heart related issues. The investigation team will use this information to determine if targeted interventions are needed to improve patient care.

**Results:**

Results of this study will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Evaluation of an Off-Label Dose Reduction of Apixaban in Patients Eighty Years and Older Living with Atrial Fibrillation**

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Rebecca Dudley, PharmD, BCCP, CACP; Kelsey Brebberman, PharmD, BCCP;

Kathryn Weber, PharmD, BCPS, BCCP

**UAN:** 0048-0000-25-074-L01-P

**Learning Objectives:**

1. Outline current guidelines for stroke reduction in patients with atrial fibrillation.
2. Identify criteria for an appropriate dose reduction of apixaban.

**Purpose:**

Apixaban is a first-line agent for stroke prevention in patients with atrial fibrillation (AF) and elevated thromboembolic risk. Currently, no literature has assessed clinical outcomes in patients who receive an off-label dose reduction of apixaban solely for age. This study sought to identify differences in clinical outcomes in patients receiving off-label compared to per-label dosed apixaban in patients 80 years and older.

**Methods:**

This is a single-center, retrospective review evaluating clinical outcomes in patients with AF who received off-label versus per-label dosed apixaban. Inclusion criteria consisted of patients who were ≥80 years old, had a diagnosis of nonvalvular AF, and had received apixaban. Patients were excluded if they had a serum creatinine of ≥1.5mg/dL and/or weight of ≤60kg at time of medication order, were being treated with apixaban for any other active indication, or had any concomitant medications that would require a dose adjustment. The primary outcome evaluated a composite of fatal or nonfatal stroke/systemic embolism (SSE), International Society for Thrombosis and Haemostasis (ISTH) major bleeding and clinically relevant nonmajor bleeding (CRNMB), and all-cause mortality one year following initiation of apixaban once a patient turned 80 years old. Secondary outcomes assessed the individual components of the primary composite outcome. A subgroup analysis was conducted to identify any differences in clinical outcomes in specific age groups and in patients with different numbers of underdosing factors. Data was analyzed utilizing independent t-tests, chi-square tests, or Fisher’s exact tests where appropriate.

**Results:**

A total of 217 patients were screened and of those who met inclusion criteria, 98 were assigned to the per-label dosed group and 32 were assigned to the off-label dosed group. The composite primary outcome occurred in 23.5% of those assigned to the per-label dosed group and 37.5% of those assigned to the off-label dosed group, however, there was no significant difference (p=0.12). There were no differences in any of the secondary outcomes. In the subgroups of patients who experienced a primary outcome event with 0-2 and ≥6 underdosing factors, there was a higher rate of the composite outcome in the off-label group (p=0.01; p=0.05, respectively). Lastly, no difference was identified in the composite outcome in those aged 80-89 years old or ≥90 years old.

**Conclusion:**

In patients ≥80 years old with AF who did not meet other criteria for dose reduction, there was no difference in the primary composite outcome when treated with per-label or off-label dose apixaban. Though underpowered, this retrospective review addresses a key gap in the current literature.

**Impact of Pharmacist-Led Hepatitis C Clinic on**

**Hepatitis A and B Vaccination Rates and Treatment Outcomes**

Lauren Jenkins, PharmD – PGY1 Pharmacy Resident at St. Elizabeth Healthcare in Edgewood, Kentucky

Courtney Koogler, PharmD, BCPS, BCACP; Emma Sapp, PharmD, BCACP; Andrea Spaulding, PharmD, BCACP

**UAN:** 0048-0000-25-075-L06-P

**Learning Objectives:**

1. Describe the impact of a pharmacist-led medication management clinic on Hepatitis A and B vaccination rates in patients with Hepatitis C compared to traditional care models.
2. Identify key barriers and strategies for improving vaccination rates in high-risk patient populations within a specialized clinic setting.

**Purpose:**

Patients with Hepatitis C (HCV) are at increased risk for both Hepatitis A (HAV) and B (HBV) infections. Co-infection accelerates liver disease progression with higher morbidity and mortality. The Centers for Disease Control and Prevention (CDC) recommends screening and vaccinating HCV patients against HAV/HBV if not immune, yet vaccination rates remain suboptimal (26.8-49.4% for HAV; 32.7-52.3% for HBV). This study evaluates a pharmacist-led medication management clinic's (MMC) impact on vaccination rates and treatment outcomes compared to standard gastroenterology care.

**Methods:**

This IRB-approved retrospective study compared HCV patients treated in the pharmacist-led MMC (n=330, 2022-2024) with historical controls treated by gastroenterology providers (n=250, 2016-2018). Adult HCV patients with at least one appointment were included. Patients were excluded from the study if they had undetectable HCV RNA, were pregnant or incarcerated at the time of treatment, or if they were referred to a non-MMC provider during the intervention period. The primary outcome was HAV/HBV vaccination initiation. Secondary outcomes included treatment completion, sustained virologic response, screening rates, and specialty pharmacy prescription retention.

**Results:**

This study compared 330 patients in the MMC group to 250 patients in the gastroenterology group. Immunity screening rates were higher in the MMC group for both HAV (97.6% vs 76.4%) and HBV (94.8% vs 28.8%). Among HAV vaccine-eligible patients, 33.2% in the MMC group received vaccination (either initiated or completed) compared to 22.6% in the gastroenterology group (p=0.021, OR=1.7, 95% CI: 1.11-2.65). For HBV vaccine-eligible patients, vaccination rates (initiated or completed) were significantly higher in the MMC group (36.6% vs 23.7%, p=0.014, OR=1.84, 95% CI: 1.15-2.94). The MMC group also demonstrated higher HCV treatment initiation as well as SVR12 achievement.

**Conclusions:**

The pharmacist-led MMC demonstrated significant improvements in HAV and HBV vaccination rates, with patients in the MMC group being 1.7 times more likely to receive HAV vaccination and 1.86 times more likely to receive HBV vaccination compared to the gastroenterology group. The MMC model also improved HCV treatment initiation and cure rates. These findings highlight the valuable role pharmacists play in comprehensive HCV care, addressing both treatment and prevention through improved vaccination rates.

**Impact of Parenteral Anticoagulation on Factor Xa Inhibitor Initiation for Acute VTE: A Multicenter Study**

Natasha Jolakoski, PGY1 Pharmacy Resident at Henry Ford St. John Hospital; Christopher Giuliano, PharmD, MPH; Stephanie Edwin, PharmD

**UAN:** 0048-0000-25-076-L01-P

**Learning Objectives**

1. Evaluate evidence regarding the safety and efficacy of counting the number of parenteral anticoagulation days towards the lead in dosing days for apixaban and rivaroxaban in the treatment of acute venous thromboembolism (VTE).
2. Describe outcomes of initial parenteral anticoagulation compared to full factor Xa inhibitor lead-in dosing.

**Purpose:**

To evaluate the safety and efficacy of subtracting the number of days of parenteral anticoagulation from the lead-in dosing compared to administering the full lead-in dose.

**Methods:**

We conducted a multicenter, retrospective cohort study conducted across 29 hospitals across the Ascension and Henry Ford Health Systems. Adult patients admitted to the hospital with a new diagnosis of VTE, who received therapeutic parenteral anticoagulation for at least 24 hours prior to initiation of apixaban or rivaroxaban for acute VTE were included in the study. Patients were excluded if bleeding at hospital admission, received therapeutic anticoagulation prior to admission, had a history of antiphospholipid antibody syndrome, severe liver disease, or received contraindicated medications. The primary outcome was the time to recurrence of VTE within the index admission to 6 months.

**Results:**

A total of 740 full lead-in dosing and 201 reduced lead-in dosing patients were included in the preliminary analysis. There was no difference in time to recurrent VTE (3.2% vs 1.9%, p=0.33) between the full lead-in dosing and reduced lead-in dosing groups. There was a difference in unadjusted all-cause mortality within 6 months (2.3% vs 6.1%, p<0.05). Anticoagulation-related re-admission rate (20.7% vs 13%, p =0.19) and CRNMB (2.2% vs 1.0%, p=0.77), were similar between the two groups.

**Conclusions:**

Based on our preliminary analysis, there was no difference in time to recurrent VTE in patients who received full lead-in dosing vs reduced lead-in dosing.

**Evaluating the Appropriateness of Human Rabies Immune Globulin and Vaccinations**

Leila Jugo, PharmD, PGY1 Pharmacy Resident at University Hospitals Ahuja Medical Center, Beachwood

Colton Hill, PharmD, BCPS; Lisa Scherer, PharmD, BCPS

**UAN:** 0048-0000-25-077-L06-P

**Learning Objectives:**

1. Evaluate the appropriate use of human rabies immune globulin, including proper dose, proper administration, and proper patient population
2. Evaluate the compliance of sequential vaccine administrations
3. Evaluate for cost savings implementing a dose rounding policy

**Purpose:**

Rabies is a fatal viral infection that is spread via bites and scratches of infected animals. Potential exposures require immediate medical attention, often in the emergency department (ED) setting, to evaluate the necessity of post-exposure prophylaxis, otherwise known as PEP. PEP is a combination of two steps, consisting of a dose of the human rabies immune globulin (HRIG) along with a vaccination series. Not all exposures warrant the usage of HRIG, specifically in patients who have already received the full vaccination regimen and have a documented response to antibodies. HRIG is dosed by actual body weight at 20 units/kilogram. It is given via wound infiltration and intramuscularly and is available in 300 units/mL in various vial sizes. Not all exposures warrant the same vaccination schedule. Vaccination administration is dependent on different factors including prior PEP administration, exposure date, and whether or not the patient is immunocompromised. Those who have received PEP previously only require a two-dose regimen. Patients with no prior vaccine history require a four-dose series on days 0, 3, 7, and 14. If immunocompromised, an additional dose is given on day 28.

**Methods:**

This study is a single-center, retrospective chart review evaluating 48 patients seen at University Hospitals Ahuja Medical Center (UHAMC) in the emergency department from January 2024 through October 2024. The primary objective was evaluated by comparing administered doses to calculated doses, evaluating injection locations via published notes in patient charts, and using the Ohio Department of Health’s online risk-assessment tool to verify if patients who received HRIG had an indication for it. The secondary objectives were evaluated using the Ohio Department of Health’s immunization registry to check patient’s vaccination status and by calculating a reduced dose of HRIG and comparing that price to the dose given to each patient.

**Results:**

Of 48 patients, all patients received the proper dose of calculated HRIG. 43 of those patients received HRIG via wound infiltration and intramuscular injection, 2 patients appropriately received HRIG via intramuscular injection only, and 3 patients received HRIG via intramuscular injection only, when the should’ve received it via wound infiltration as well. All but 1 patient were properly indicated to receive HRIG. 32 patients received all sequential vaccinations, while 16 patients did not. Of those patients who received all their vaccinations, 24 were compliant with the recommended dosing regimen schedule. If implemented, a dose reduction policy would have resulted in a cost savings of $54,290.54.

**Conclusions:**

Conclusions and a discussion on the process of implementing a dose reduction policy at a system-wide level to be discussed at the Ohio Pharmacy Resident Conference.

**Assessing Blood Pressure Targets: Evaluation of Optimal Blood Pressure Lowering**

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**UAN:** 0048-0000-25-078-L01-P

**Learning Objectives:**

1. Discuss the medical and financial burdens of cardiovascular disease (CVD)
2. Recall blood pressure targets established by current guidelines
3. Review a strategy to evaluate blood pressure target achievement among primary care patients that can be reproduced at other institutions

**Purpose:**

This study aimed to enhance understanding of hypertension management in a real-world setting, ultimately improving clinical guideline compliance and cardiovascular health outcomes in a vulnerable patient population. The primary objective of this study was to assess BP control of patients in the Jefferson Avenue Family Medicine (JFM) practice. Secondary objectives included assessing JFM provider awareness of, and efforts to achieve, BP targets along with assessing if JFM patients with coronary artery disease (CAD) or heart failure (HF) are on BP-lowering guideline-directed medical therapy (GDMT).

**Methods:**

This retrospective chart review included patients aged 65-85 years with hypertension and a history of CAD, HF, or stroke who were on BP-lowering therapy and seen by a JFM provider between January 1, 2024 and June 30, 2024. Patients were assessed for achievement of BP targets based on the ACC/AHA, 2020 ISH, and 2022 AAFP guidelines. The primary endpoint was BP target achievement. Secondary endpoints included assessing if JFM providers documented BP targets and interventions to improve BP control and if patients with CAD or HF were on BP-lowering GDMT.

**Results:**

Of 140 screened patients, 83 were included. A BP < 130/80 mmHg was achieved in 24 (29%) and BP < 140/90 mmHg in 58 (70%). The ACC/AHA guidelines assigned all patients a < 130/80 mmHg BP target. The 2020 ISH guidelines assigned 55% of patients a < 130/80 mmHg target and 45% a < 140/90 mmHg target. The 2022 AAFP guideline assigned all patients a <140/90 mmHg target, with consideration for < 135/85 mmHg. In total, 70% met AAFP targets, 47% met ISH targets, and 29% met ACC/AHA targets. Despite 58 patients achieving the 2022 AAFP guideline < 140/90 mmHg BP target, only 32 (39%) achieved the AAFP consideration for BP < 135/85 mmHg. Among 25 patients not meeting any target, provider interventions were documented in 9 (36%), and BP targets in 2 (8%). Of 83 CAD patients, 64 (77%) were on beta-blockers, but only 44 (53%) were on ACEi/ARBs. Among 21 HF patients, 17 (81%) were on guideline-directed beta-blockers, 15 (71%) on ACEi/ARBs/ARNi, and only 7 (33%) on MRAs.

**Conclusions:**

Blood pressure targets vary widely across guidelines, highlighting the need for harmonization. Nearly a third of JFM patients did not meet any BP target. Provider documentation of BP goals and interventions was limited, emphasizing the need for enhanced education and integration of guidelines into practice. Furthermore, suboptimal ACEi/ARB use in CAD (53%) and MRA use in HF (33%) underscore potential gaps in guideline-directed therapy implementation.

**Developing a pharmacist-led Medicaid annual wellness pilot program**

Alaina Kortokrax, PharmD, PGY1 Pharmacy Resident at ONU HealthWise, Ada, Ohio

Michael Rush, PharmD, MBA, BCACP, CDE/CDCES, NCTTP; Stuart Beatty, PharmD, MPAL, BCACP, FAPhA; Karen Kier, PhD, MSc, RPh, BCPS, BCACP, CTTS, FASHP, FCCP; Lena Salameh, PharmD

**UAN:** 0048-0000-25-079-L04-P

**Learning Objectives:**

1. Identify social determinants of health that can impact patients’ overall health.
2. Compare and contrast components of a Medicare Annual Wellness Visit and a Medicaid Annual Wellness Visit.

**Purpose:**

Medicare Annual Wellness Visits (AWV) are a visit conducted by practitioners for Medicare enrollees that focus on overall patient wellness and prevention. Medicare AWVs are associated with higher preventative care utilization and a reduction in overall healthcare costs. Medicaid does not have its own AWV. The goal of the project is to expand upon existing pharmacy and Mobile Health Clinic (rural, medically underserved region) wellness visits offered by ONU HealthWise while mirroring the Medicare AWV to create a Medicaid AWV pilot program for the state of Ohio. The primary objective is to identify the number of Medicaid patients in the geographical area who participate in an AWV. Secondary objectives include the number of undiagnosed conditions identified in these patients through the AWVs, percentage of Medicaid AWVs billable for reimbursement, economic analysis, and patient satisfaction with care.

**Methods:**

Patients serviced by ONU HealthWise with Medicaid coverage are contacted telephonically or electronically. Physical advertisements are posted in the HealthWise pharmacy and Mobile Health Clinic (MHC) with phone number and URL/QR code to schedule. Medicaid patients > 18 years old with consent are able to participate. Children (<18 years of age) are eligible for an AWV subject to consent from parent/legal guardian. When participants schedule an AWV appointment, their PCP is notified. If they don't have a PCP, a referral is made to a provider of their choice or our collaborating physician group. PCP involvement ensures ongoing care between AWVs. AWVs include point-of-care testing, documentation of health risks (i.e. medical and family history, immunizations), pregnancy status, and social determinants of health, and furnished healthcare advice and screening schedule to hopefully improve health outcomes. All outcomes will be analyzed using descriptive statistics. Patient satisfaction with care following the visit will be evaluated using the validated Patient Satisfaction with Pharmacist Services questionnaire 2.0.

**Results:**

Study in progress. Results to be available during presentation at OPRC.

**Conclusions:**

No current literature to support or refute this study. This project is novel in its implemented population. This research is intended to be published in a peer-reviewed journal, with detailed instruction for other pharmacists to utilize and implement for their Medicaid patient populations where able.

**Optimizing Phenobarbital Dosing in the Emergency Department: A Clinical Study on Efficacy and Safety**

Alexus Kyler, PharmD – PGY1 Pharmacy Resident at University Hospitals Parma Medical Center

Catherine Wilson, PharmD, BCEMP; Madison Juillerat, PharmD

**UAN:** 0048-0000-25-080-L01-P

**Learning Objectives:**

1. Review literature to evaluate the current treatment options for alcohol withdrawal syndrome.
2. Discuss the impact of weight-based phenobarbital dosing on the Clinical Institute Withdrawal Assessment for Alcohol – Revised scores (CIWA-Ar).
3. Describe the effect of weight-based phenobarbital dosing on hospital length of stay, disposition, mechanical ventilation, and need for other adjunctive medications to treat alcohol withdrawal syndrome (AWS).

**Purpose:**

Recent benzodiazepine shortages have prompted the study of phenobarbital use for alcohol withdrawal syndrome (AWS). Clinical trials performed thus far have proven that phenobarbital is an effective alternative to benzodiazepines for AWS. However, dosing strategies vary throughout studies and the most optimal dosing strategy is unknown. The aim of this study was to help determine if a weight-based dosing protocol for phenobarbital in AWS is as effective as a fixed dosing protocol in lowering CIWA-Ar scores. Additionally, this study may help identify an optimal weight-based dose of phenobarbital to guide clinical practice and future protocol creation.

**Methods:**

Data was collected through retrospective chart review for patients who presented to University Hospitals Parma Medical Center Emergency Department for treatment of AWS. Patients were included in the study if they received at least one dose of intravenous phenobarbital between October 1st 2023 to October 1st 2024. The primary outcome of the study is change in CIWA-Ar scores related to phenobarbital milligram per kilogram doses administered. Secondary outcomes include rate of mechanical ventilation, need for intensive care unit (ICU) admission, hospital length of stay, and use of adjunct medications including benzodiazepines, dexmedetomidine, and clonidine.

**Results:**

Data is in the process of being analyzed. Final results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Comparison of Intravenous vs. Intramuscular Ketamine in Pediatric Procedural Sedation**

Kristy Lai, PharmD, PGY1 Pharmacy Resident at Mercy Health St Vincent Medical Center, Toledo

Abagail Barazi, PharmD, BCCCP; Alison Paplaskas, PharmD, BCCCP; Deidre J Burger, PharmD, MBA, BCPS

**UAN:** 0048-0000-25-081-L01-P

**Learning Objectives:**

1. Describe the pharmacokinetic differences between intravenous (IV) and intramuscular (IM) ketamine in pediatric patients
2. Compare the efficiency and safety of IV versus IM ketamine in pediatric procedural sedation

**Purpose:**

Ketamine is widely recommended for pediatric sedation due to its unique pharmacologic properties. In busy emergency department (ED) settings, optimizing its administration is essential to minimize procedural and discharge times, improve patient throughput, and enhance overall outcomes. While ketamine's safety profile is well-established, existing studies on the efficiency of intravenous (IV) versus intramuscular (IM) administration remain limited in scope and yield inconsistent results. This study aims to compare the efficiency and safety of IV and IM ketamine in pediatric procedural sedation.

**Methods:**

This retrospective, single-center cohort study compared IV versus IM ketamine for procedural sedation in patients aged 3 months to 17 years in the emergency department at Mercy Health St. Vincent Medical Center between September 1, 2022, and August 31, 2024. Patients who received ketamine for non-procedural purposes were excluded. The primary outcome was the time from ketamine administration to discharge. Secondary outcomes included total procedure time, time to efficacy, time to recovery, and the incidence of adverse events.

**Results:**

Of the 193 patients reviewed, a total of 186 patients were included. Of these, 138 patients received ketamine via the IV route, while 48 patients received IM. Time to discharge was 17 minutes shorter in the IV group compared to the IM group (146 ± 63 mins vs 163 ± 56 mins), though the difference was not statistically significant (95% CI -36.8 to 2.3; p=0.08). The IV group had significantly shorter time to efficacy (3.0 ± 2 mins vs 5.4 ± 3 mins; 95% CI -3.6 to -1.3; p<0.05) and shorter time to recovery (38 ± 19 mins vs 72 ± 37 mins; 95% CI -51 to -33; p<0.05). No difference was seen in total procedure time or total ED time. Adverse event rates were also similar between groups, with most events being mild and cardiovascular in nature.

**Conclusions:**

Intravenous ketamine provides significantly faster onset and shorter recovery times compared to IM ketamine, making it preferable when IV access is available. Intramuscular ketamine remains a viable option when IV access is not feasible, as the discharge and total ED times were similar. While IV ketamine may improve procedural efficiency, its overall impact on ED throughput remains unclear and could be influenced by other factors. Larger prospective studies are warranted to further evaluate how ketamine route selection affects both clinical outcomes and operational efficiency in pediatric procedural sedation.

**Hemodynamic Impact of Etomidate vs Ketamine for Rapid Sequence Intubation in Normotensive Patients**

Austin Lake; Rebecca Valean; Grant Morgan; Lisa Hall Zimmerman

Austin Lake, PharmD, PGY2 Emergency Medicine Pharmacy Resident at Corewell Health William Beaumont University Hospital, Royal Oak, MI

Rebecca Valean, PharmD; Grant Morgan, PharmD, BCPS; Lisa Hall Zimmerman, PharmD, BCPS, BCNSP, BCCCP, FCCM, FCCP

**UAN:** 0048-0000-25-082-L01-P

**Learning Objectives:**

1. Review medications commonly used for rapid sequence intubation
2. Explain the complications of rapid sequence intubation

**Purpose:**

Consideration must be given to the hemodynamic effect of induction agents administered prior to rapid sequence intubation (RSI). The data supporting the use of ketamine (KET) as an alternative to etomidate (ETO) has shown concerning outcomes in critically-ill patients with depleted catecholamine stores. However, data evaluating these outcomes in patients with adequate catecholamine reserves is lacking. This study evaluated the impact of ETO versus KET on hemodynamics when utilized as induction agents for RSI in normotensive patients.

**Methods:**

This single-center, retrospective cohort study included adult patients between 3/2016-3/2024 who received ETO or KET as induction agents prior to RSI in the emergency department. Patients were excluded if they presented with pre-intubation hypotension (SBP<90 mmHg) or cardiac arrest. The primary outcome was incidence of post-intubation hypotension, defined as SBP<90 mmHg within 90-minutes after induction agent administration. Secondary outcomes included change in SBP before versus after induction agent administration, as well as time to vasopressor and subsequent sedative agent initiation. SPSS was used for statistical analysis.

**Results:**

Of the 1581 patients screened, 58 patients (29 ETO, 29 KET) were included in the final analysis, 58% male, with the most common admitting diagnoses being respiratory failure (34%) and infection (26%). Baseline pre-intubation SBP was similar between groups, 138±37 ETO vs 133±38 KET, mmHg, p=0.62. No difference was seen in post-intubation hypotension between groups, 21% ETO vs 21% KET, p=0.99. Absolute change in SBP from time of induction to 90-minutes was not different, -7.6[-25.0,3.6] ETO vs 0 [-27.6,13.3] KET, mmHg, p=0.49. No differences were seen regarding the need for vasopressor initiation within 24-hours after induction, 12% ETO vs 9% KET, p=0.74.

**Conclusions:**

Hemodynamic stability is critical to maintain when performing RSI. In normotensive patients receiving ETO or KET for RSI induction, we did not observe a significant difference in hemodynamic changes.

**Outcomes in Patients Who Receive Tranexamic Acid for Severe Upper Gastrointestinal Bleed**

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Elizabeth Jacob, PharmD, BCPS; Dewey Belcher, PharmD; Julia Landis, PharmD, BCPS; Kathleen Patton, PharmD; Ashton VanDyke, PharmD, MSHI, BCPS; Bianca Dodgen, PharmD; BCPS, BCCCP.

**UAN:** 0048-0000-25-083-L01-P

**Learning Objectives:**

1. Describe the mechanism of action for Tranexamic Acid (TXA)
2. Compare the results of current literature using TXA for different types of major hemorrhage to TXA use for gastrointestinal bleed (GIB)
3. Discuss the impact of TXA on severe upper GIB

**Purpose:**

Tranexamic acid is an antifibrinolytic agent that has proven benefit in uncontrolled bleeding in postpartum hemorrhage and trauma patients. However, the benefit when using tranexamic acid for upper gastrointestinal bleeds is unclear. This study aims to address the conflicting literature on the safety and efficacy of tranexamic acid in patients with severe upper gastrointestinal bleeds.

**Methods:**

A retrospective chart review was conducted within an eight-hospital health system and evaluated from January 1, 2021 through January 1, 2024. The treatment group included those that received intravenous tranexamic acid with the control group being those who did not receive TXA. The primary outcome of the study was evidence of ongoing bleeding within five days of TXA administration. Secondary outcomes include VTE events, hospital length of stay, in-hospital mortality, ICU admission, ICU length of stay, and 30-day readmission rates to a Kettering Health facility.

**Results:**

A total of 26 patients who received TXA met inclusion criteria. After matching a total of 20 patients who did not receive TXA met inclusion criteria. In the primary outcome 42.3% individuals in the TXA group had evidence of ongoing bleeding in comparison to 25% in the control group (p=0.222). Mortality rates were higher in the TXA group with 5 mortalities versus no mortality in the control group (p=0.038). All other secondary outcomes showed no statistical difference.

**Conclusions:**

Use of tranexamic acid in patients with severe upper gastrointestinal bleeds is not associated with a statistically significant improvement in terms of reducing ongoing bleeding rates.

**Argatroban International Normalized Ratio Elevation and Transition to Warfarin in Heparin Induced Thrombocytopenia**

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John M. Koerber, Pharm D; Maureen A. Smythe, Pharm D. FCCP

**UAN:** 0048-0000-25-084-L01-P

**Learning Objectives:**

1. Discuss the current guidance for transitioning patients from argatroban to warfarin
2. Identify areas for improvement during the transition process

**Purpose:**

Heparin-induced thrombocytopenia (HIT) is an immune mediated adverse drug reaction to heparin anticoagulants which increases the risk of thrombosis. Argatroban is a parenteral direct thrombin inhibitor often used for HIT. Some HIT patients will require a transition (bridge) from argatroban to warfarin. This transition period is complicated by argatroban’s dose-dependent "false" elevation in the international normalized ratio (INR). Our institution provides guidance on the bridge from argatroban to warfarin. Published data assessing this bridge in practice is limited. This study will evaluate the transition from argatroban to warfarin to assess compliance with institutional guidelines and determine the success of the transition.

**Methods:**

This study is a single-system, IRB exempt, retrospective cohort chart review which took place at three hospitals in our health-system between January 2019 and June 2024. Data was collected from adult HIT patients who received both argatroban and warfarin on the same day with the intent to bridge to warfarin for outpatient anticoagulation. Data collected included patient demographics, anticoagulant dosing and administration, HIT serology, laboratory values, and thrombotic and bleeding events. The primary endpoint was compliance with all sequential steps outlined in our institutional guidance. Full compliance was assessed in those with a monotherapy INR check, and partial compliance was assessed in those without. The secondary endpoints were bridge success assessed using five pre-defined criteria, bleeding, objectively confirmed thrombosis, and the individual components of compliance.

**Results:**

Thirty-two bridge courses were evaluated in 29 patients. All patients were heparin antibody positive with a mean optical density of 2.4. Full compliance was assessed in 29 bridge courses, and partial compliance in 3 bridge courses. Eight of the 32 (25%) bridge courses were found to be compliant. The most common reasons for non-compliance included a two-step process for assessing monotherapy INR not being followed when appropriate (6/15, 40%), having less than a 5-day bridge (8/29, 27.6%), and warfarin initiation before platelet recovery (7/32, 21.9%). Bleeding occurred in 20.7% of patients and thrombotic events occurred in 6.9% of patients.

**Conclusions:** Institutional guideline compliance for bridging patients from argatroban to warfarin and success of bridge courses was low. Bleeding was more common in our patients than thrombotic events. Opportunities exist to improve this process.

**Incidence of Bronchopulmonary Dysplasia in Very Low Birth Weight Neonates Receiving Early Versus Delayed Sodium Supplementation**

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Kari Hetzel, PharmD, BCPS; Natalie Thamann, PharmD, BCPS

**UAN:** 0048-0000-25-085-L01-P

**Learning Objectives:**

1. Discuss the importance of postnatal diuresis on bronchopulmonary dysplasia (BPD).
2. Assess the impact of sodium supplementation on growth.

**Purpose:**

The relationship between early sodium needs and fluid management on BPD in preterm infants is complex and not fully understood. Preterm infants often experience sodium losses during postnatal diuresis, further exacerbated by delaying sodium administration. Effective fluid management is essential for volume regulation, and maximizing early diuresis may reduce the risk of BPD and other morbidities. While an initial negative sodium balance helps reduce extracellular fluid, insufficient intake and losses can cause hyponatremia and potentially impact growth. This study aims to assess prevalence of BPD in preterm infants receiving early versus delayed sodium supplementation through total parenteral nutrition (TPN), and to assess the impact of delaying sodium administration on short- and long-term neonatal growth.

**Methods:**

This is a retrospective study of neonatal patients who received TPN with a birth weight (BW) of 1500 grams or less and/or gestational age (GA) of less than 32 weeks admitted to St. Elizabeth Healthcare Edgewood from January 1, 2019, to October 31, 2024. Patients were excluded if they were transferred out of the facility prior to day of life (DOL) 28. Data collected included: baseline demographics; weight at DOL 14, discharge, or 40 weeks post-menstrual age; weight nadir, DOL weight nadir achieved; other sodium administration, hydrocortisone administration, vitamin A administration, poractant alfa administration. The primary outcome was to assess the prevalence of BPD in infants with sodium supplementation within the first 4 DOL compared to delaying until after DOL 4. The secondary outcome was to assess the effect of early versus delayed sodium supplementation on neonatal growth. Categorical data will be analyzed using Chi-Square Test. Continuous data will be analyzed using Independent Samples t-test or Mann-Whitney U test, as appropriate.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**The Evaluation of Student Pharmacist Interest in Post Graduate Training**

Zachary Lenz, PharmD PGY1 Pharmacy Practice Resident Mount Carmel Health System – Grove City

Monica Nayar, PharmD; Jordan DeWitt, PharmD, BCPS, BCCCP; Mark Doles, PharmD, BCPS; Ryan Schell, PharmD, MBA; Joshua Musch, PharmD, BCPS; Gina Gelonese, PharmD

**UAN:** 0048-0000-25-086-L04-P

**Learning Objectives:**

1. Identify key factors in PharmD student interest in post-graduate training programs (PGTP)
2. Interpret trends of PharmD students regarding PGTPs based on various sub-group analyses
3. Discuss how PGTP leadership teams can match expectations of PharmD students

**Purpose:**

There has been a recent downtrend in applications and admissions into ACPE-accredited PharmD programs and subsequently post-graduate training programs (PGTP). This study aimed to identify key factors influencing PharmD student interest in PGTP to assist with program recruitment efforts.

**Methods:**

This study consisted of a 14-question survey sent to students at 11 colleges of pharmacy across Indiana, Kentucky, Michigan, Ohio, Pennsylvania, and West Virginia. The primary outcome was characterizing the top motivating and demotivating factors for pursuing PGTP among respondents. A subgroup analysis compared these factors based on interest in pursuing PGTP on a 0-10 scale (low interest 0-3, moderate interest 4-6, high interest 7-10).

**Results:**

347 students responded to the survey from 10 colleges of pharmacy. Overall, 78 (22.5%) participants indicated low interest in PGTP, 73 (21%) moderate interest, and 196 (56.5%) high interest. The top 3 motivating factors for pursuing PGTP were exposure to areas of interest (n=218, 63%), location (n=162, 47%), and compensation (n=139, 40%). The top 3 demotivating factors for pursing PGTP were fear of future burnout (n=190, 55%), compensation (n=160, 46%), and already feeling burnout (n=140, 40%). Fear of future burnout was the top demotivating factor across all interest levels, but highly interested respondents were significantly less likely to report already feeling burnout (p=0.003).

**Conclusions:**

Students with high interest in PGTP were less likely to identify feelings of current burnout and more likely to indicate desire to pursue additional areas of interest in PGTP. To attract these highly interested applicants, PGTP leadership should market unique experiences and areas of practice which prospective trainees can expect in their program. To mitigate concerns for existing or future burnout, PGTP leadership should focus on desirable and unique program elements, such as existing support of trainee wellness and resiliency, as part of effective recruitment efforts.

**Assessing the Accuracy of Learning Assessments Before and After Nursing Education**

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Lauryl Kristufek-Hanf, PharmD, BCPS, CACP; Christopher Snyder, PharmD, BCPS

**UAN:** 0048-0000-25-087-L04-P

**Learning Objectives:**

1. Evaluate the impact of targeted nursing education on the accuracy of learning assessments in hospitalized patients.
2. Analyze potential factors contributing to inaccurate learning assessments including sex, race, age, and area of the hospital.

**Purpose:**

Approximately 80 million adults in the United States struggle with limited health literacy, leading to high-risk behaviors, increased hospitalizations, and higher healthcare costs. For this reason, Mercy Health – St. Charles Hospital utilizes learning assessments to help identify patient barriers, yet pharmacists are finding errors in documentation, such as a blind patient with preferences for reading and writing. This study aims to identify the number of patients having an accurate learning assessment before and after nursing education. By providing targeted nursing education, the goal is to improve screening accuracy and ultimately improve patient safety and health outcomes while reducing costs.

**Methods:**

This study is a quality improvement opportunity conducted at Mercy Health - St. Charles Hospital.This study includes patients admitted to Mercy Health - St. Charles Hospital with learning assessments completed by nursing during the time frame of the study. Pharmacists interviewed identified patients and updated literacy assessments as indicated. Halfway through the planned study period, data was reviewed by pharmacist to determine opportunities for targeted nursing education which was provided to nursing staff. Pharmacists will continue to interview patients after nursing education distribution and will compare the data to assess improvements in completed learning assessments. The study's primary outcome is to identify the number of patients accurately screened on their learning assessment before and after nursing education. Secondary outcomes include the number of changes made by the pharmacist to a patient’s learning assessment; correlation between sex, race, age, and incorrect learning assessments; and if a certain area or nurse has more incorrect learning assessments.

**Results:**

Data collection is ongoing with results presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Data collection is ongoing with conclusions presented at the Ohio Pharmacy Residency Conference.

**Immunotherapy Re-treatment after Durvalumab in Patients with Non-Small Cell Lung Cancer**

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Mark Zangardi, PharmD, BCOP; Dwain Reed, PharmD, BCOP

**UAN**: 0048-0000-25-088-L01-P

**Learning Objectives:**

1. Review current literature on the treatment of unresectable non-small cell lung cancer.
2. Explore the use of subsequent immunotherapy after durvalumab therapy in patients with unresectable non-small cell lung cancer.

**Purpose:**
Most patients with unresectable non-small cell lung cancer (NSCLC) treated with chemoradiation followed by consolidation with durvalumab, an immune checkpoint inhibitor (ICI), for up to one year eventually experience disease progression. Data on the efficacy of subsequent ICI treatment after progression remain limited. One study found ICI rechallenge in unselected NSCLC patients was generally ineffective but suggested potential benefits in a selected population, specifically, those who discontinued ICI due to protocol completion or had an ICI-free period from toxicity or early discontinuation. This single-center retrospective case series evaluates progression-free survival (PFS) in NSCLC patients treated with a subsequent ICI after durvalumab.

**Methods:**
Using electronic medical records (EMR), eligible patients with unresectable NSCLC were identified within the OhioHealth health system. Patients received at least one dose of durvalumab followed by at least one dose of a subsequent ICI (atezolizumab, cemiplimab, nivolumab ± ipilimumab, or pembrolizumab). The primary endpoint was PFS from the start of the subsequent ICI. Secondary endpoints included overall survival (OS) from durvalumab initiation, treatment modifications or delays associated with subsequent ICI, and key patient characteristics and demographics. Subgroup comparisons for PFS and OS were conducted between a selected group (patients who completed one year of durvalumab or discontinued early due to toxicity/tolerability) and those who progressed on durvalumab.

**Results:**
Twenty-nine patients were included in the analysis. The median PFS with subsequent ICI was 5.0 months (95% confidence interval [CI], 3.34 to 8.01). Subgroup comparison showed no statistically significant difference in PFS between the selected group and those who progressed on durvalumab (6.9 months vs. 4.1 months, p=0.62). The median OS was 26.8 months (95% CI, 23.05 to 31.31). OS was significantly longer in the selected group compared to those who progressed on durvalumab (31.0 months vs. 20.5 months, p<0.05). No patients experienced treatment modifications or delays associated with ICI toxicity while on durvalumab or subsequent ICI. There was no increase in documented adverse events, with pneumonitis and hypothyroidism being the most common.

**Conclusion:**
This study reports a median PFS of 5.4 months with subsequent ICI re-treatment. While PFS did not improve in the selected population, OS was significantly longer. Further investigation of ICI re-treatment may be warranted in patients who completed ICI protocol or discontinued early due to toxicity.

**Prevalence of Depression & Anxiety Among Pharmacy Students**

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Masa Scott, PharmD, BCPS, BCPP; Melanie Taylor, PharmD, BCPS, BCEMP

**UAN:** 0048-0000-25-089-L04-P

**Learning Objectives:**

1. Identify the prevalence of clinical anxiety and depression symptoms among pharmacy students in Ohio
2. Identify factors that are correlated with higher depression and anxiety symptoms

**Purpose:**

Recently, burn-out and mental health has been at the forefront of the pharmacy profession. Post COVID-19, pharmacies have been faced with staff shortages, increased workload, and higher stress along with the closing of multiple retail pharmacies. All of this may be impacting students as we’ve also seen a decrease in pharmacy school enrollment. The aim of this study is to explore how changes in the pharmacy profession may be influencing anxiety and depression in pharmacy students along with identifying other factors such as sleep, exercise, and workload may be impacting the mental health of pharmacy students.

**Methods:**

This study included pharmacy students with an active pharmacy intern license with the Ohio Board of Pharmacy. Active interns were sent an anonymous, optional survey to their email. Demographics collected include gender, age, year of pharmacy school, GPA and prior diagnosis of anxiety or depression. The survey consisted of the PHQ-9 and GAD-7 to assess depression and anxiety symptoms, and questions about sleep, caffeine consumption, exercise, and work outside of school. Questions about students’ perceptions on multiple retail pharmacies closing, job outlook and declining pharmacy school enrollment were also included. Students were asked if their school is implementing things to promote wellness and if they find these changes helpful and if they have support from family and friends. Statistical analysis will be done to determine correlations between these questions and the prevalence of anxiety or depression. The primary outcome is to identify the number of pharmacy students with clinical depression or anxiety symptoms. Secondary outcomes include comparing anxiety and depression symptoms between the different pharmacy classes and identifying additional factors that may contribute to higher anxiety and depression symptoms.

**Results:**

Final results will be presented at the Ohio Pharmacy Residency Conference

**Conclusions:**

Finals results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Assessing Treatment of Asymptomatic Bacteriuria Before and After Healthcare Provider Education**

Mary Luck, PharmD - PGY1 Pharmacy Resident at Blanchard Valley Health System, Findlay

Nicholas Bellman, PharmD; Natasha Herzig, PharmD; Kristin Spangler, PharmD

**UAN:** 0048-0000-25-090-L01-P

**Learning Objectives:**

1. Review the current guidelines for treating asymptomatic bacteriuria (ASB).
2. Describe the difference between ASB and urinary tract infection (UTI).

**Purpose:**

The 2019 Infectious Diseases Society of America (IDSA) guidelines for the Management of Asymptomatic Bacteriuria (ASB) recommend against screening and treatment of ASB in most patient populations if those patients do not have genitourinary symptoms such as pyuria, hematuria, or polyuria. Utilization of antimicrobials for the treatment of ASB is not associated with improved outcomes but instead increases the risk of antimicrobial resistance, *Clostridioides difficile* infection, and other adverse drug events.

**Methods:**

This study was an IRB-approved single center, retrospective analysis. Patients who were admitted to Blanchard Valley Hospital over a 3-month period and received antimicrobial therapy with the indication of urinary tract infection (UTI)/pyelonephritis will be identified. Data will be reviewed before and after healthcare provider education on the novel BLADDER score, a tool used to help determine the appropriateness of antibiotic treatment in UTIs. Each letter in the score represents a possible symptom of a UTI: B, blood in urine; L, loss of urinary control; A, abdominal or flank pain; D, dysuria; E, elevated temperature; R, repeated urination. When patients are evaluated for a possible UTI, 1 point is given for each symptom the patient presents with (except dysuria, which is 2 points). A score of less than 2 suggests monitoring and investigation of other etiologies. The following data will be collected: patient age, gender, ethnicity, temperature, physical examination findings, and chosen antibiotic therapy. If available, culture, urinalysis, and renal function tests will also be collected. All data will be recorded without patient identifiers to maintain confidentiality. Treatment appropriateness will be determined utilizing the 2019 IDSA guidelines and BLADDER score. Results from before and after provider education will be compared.

**Results:**

Final results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusion:**

Final conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Development and Implementation of an Analgesia, Sedation, and Paralysis Order Set for Mechanically Ventilated Pediatric Patients at a Large Community Health System**

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Norman Fenn III, PharmD, BCPS, BCPPS; Sarah Ferrell, PharmD, BCPPS

**UAN:** 0048-0000-25-091-L01-P

**Learning Objectives:**

1. Review best practices for sedation and analgesia in mechanically ventilated pediatric patients.
2. Discuss strategies used to implement an analgesia, sedation, and paralysis order set for mechanically ventilated pediatric patients.

**Purpose:**

The ICU Liberation ABCDEF bundle exists to “liberate” ICU patients from pain, oversedation, delirium, mechanical ventilation, immobility, and isolation. Despite the popularity of the bundled care approach, sedation and analgesia practices in pediatric intensive care units (PICU) remain highly variable. Discrepancies primarily exist between institutions’ use of protocolized sedation and analgesia. The purpose of this study is to implement an analgesia, sedation, and paralysis protocol in the PICU at a large community health system.

**Methods:**

A review of the current guidelines for the management of pain, agitation, neuromuscular blockade, and delirium in critically ill pediatric patients was conducted. Practices from other pediatric specialty institutions were also collected and analyzed. This culmination of information was utilized to develop an analgesia, sedation, and paralysis order set. This order set was presented to, and later approved by nursing leadership and the medical director of Parkview Health’s Pediatric ICU. Finally, the order set was submitted for review, build, and implementation into the electronic health record service.

**Results:**

Final results and conclusions are pending analysis and will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

Final results and conclusions are pending analysis and will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Bleeding Complications During Heparin Therapy: A Subgroup Analysis**

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Nora Farha, PharmD; Jenna Holzhausen, PharmD, BCPS

**UAN:** 0048-0000-25-092-L05-P

**Learning Objectives:**

1. Review current literature regarding bleeding outcomes of patients on unfractionated heparin
2. Investigate the potential influencing factors of bleeding events in patients receiving heparin

**Purpose:**

Unfractionated heparin (UFH) remains a widely used anticoagulant for the treatment of acute venous thromboembolism (VTE). While weight-based dosing strategies aim to achieve therapeutic anticoagulation efficiently, the effectiveness of UFH dosing in obese patients is not well established and dosing caps are often implemented to mitigate the risk of bleeding events. The objective of the primary study was to evaluate effectiveness and safety of dose-capped vs. non-dose-capped heparin. This subgroup analysis was completed to classify the types of bleeding events observed and compare patient characteristics and heparin nomogram compliance in patients who bled versus those who did not.

**Methods:**

This retrospective, institutional review board-approved cohort study included adult patients who received UFH for at least 24 hours via the institution’s VTE nomogram with boluses between August 1, 2024 and August 31, 2024. Patients were categorized into two groups based on bleeding outcomes: bleed vs. no bleed. Bleeding events were classified using the International Society of Thrombosis and Hemostasis (ISTH)-defined criteria for major and clinically relevant non-major bleeding. Baseline characteristics, prior to admission and concomitant anticoagulation and antiplatelets, activated partial thromboplastin time (aPTTs) at 24 and 48 hours, and nomogram compliance were analyzed to assess their associations with bleeding.

**Results:**

A total of 126 patients were included; 17 (13.5%) bleed vs. 109 (86.5%) no bleed. Of the patients who bled, 12 (70.6%) experienced major bleeding, and 5 (29.4%) experienced clinically relevant non-major bleeding. The bleed group had a significantly higher proportion of White patients (82.4% vs. 54.1%, *p*=0.02) and a greater prevalence of active or historical cancer (52.9% vs. 25.7%, *p*=0.03). Prior to admission and concomitant anticoagulants and antiplatelets did not differ significantly between groups. The percentage of aPTTs above the goal of 60 to 90 seconds did not differ significantly between groups at 24 hours (35.3% bleed vs. 31.2% no bleed; p=0.79) or 48 hours (11.8% bleed vs. 9.2% no bleed; p=1.0). Overall nomogram compliance was not significantly different between groups (29.4% bleed vs. 32.1% no bleed, *p*=1.0).

**Conclusions:**

Bleeding events did not appear to be associated with prior to admission or concomitant anticoagulants and antiplatelets or nomogram compliance. Study findings suggest patient-specific factors, such as malignancy may be associated with bleeding risk in UFH therapy. Future prospective studies are warranted to further evaluate the relationship between heparin dosing strategies, nomogram adherence, and bleeding outcomes.

**Safety of Parenteral Anticoagulation as a Bridge to Warfarin in Patients Undergoing Mechanical Aortic Valve Replacement**

Liz Mann, PharmD – PGY2 Cardiology Resident at Ohio State University Wexner Medical Center

Laura Andino, PharmD; Alan Rozycki, PharmD; Bryan Whitson, MD, PhD; Eric McLaughlin, MS

**UAN:** 0048-0000-25-093-L05-P

**Learning Objectives:**

1. Describe current practice of antithrombotic therapy post-mechanical valve replacement
2. Evaluate the safety and efficacy of warfarin monotherapy, without a parenteral anticoagulant bridge in postoperative patients that have undergone mechanical aortic valve replacement

**Purpose:**

The purpose of this study is to evaluate bleeding rates amongst patients that received a mechanical aortic valve replacement (mAVR) who were treated with either warfarin monotherapy or warfarin with a therapeutic dose parenteral anticoagulant.

**Methods:**

This is a retrospective, single-center, observational study of patients who received a mAVR and were started on early postoperative anticoagulation with warfarin without a parenteral anticoagulant bridge compared to patients initiated on warfarin and therapeutic parenteral anticoagulant bridge. Patients at least 18 years old who received a mAVR were included if anticoagulation was ordered by the end of post-operative day 2. Patients were excluded if they had an INR goal other than 2-3, a hypercoagulable state, required postoperative mechanical circulatory support, had delayed sternal closure, were pregnant or incarcerated. The primary outcome of this study was International Society of Thrombosis and Hemostasis major bleeding until hospital discharge or 30 days post mAVR, whichever came first. Secondary outcomes include thromboembolic events such as a myocardial infarction, venous thromboembolism, pulmonary embolism, intra-cardiac thrombus, ischemic stroke, arterial and venous thrombosis during hospitalization and for 30 days following discharge or until first follow-up appointment.

**Results:**

A total of 143 patients will be included in the final analysis. One hundred twelve patients will be included in the therapeutic anticoagulation bridge group and 31 patients in the warfarin monotherapy (no bridge) group. Results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Perceived Versus Actual Impact of Remote Pharmacist Order Verification at a Multi-Site Health System**

Thomas Margevicius, PharmD, MSHI, PGY-1 Resident at Mercy Health – Lorain Hospital

Sarah Suffel, PharmD, MBA, BCPS; Hannah Belfeld, PharmD

**UAN:** 0048-0000-25-094-L04-P

**Learning Objectives:**

1. Define the structure and purpose of a pharmacy remote order verification (ROV) team
2. Evaluate the productivity impact of a ROV team within a health system

**Purpose:**

Order verification is a core function of inpatient pharmacy practice; however, inpatient pharmacists must manage numerous other critical tasks necessary for the smooth operation of a hospital pharmacy. To allow pharmacists to dedicate more time to in-person operational duties, ROV teams are often used by health systems to assist with order verification. Several studies have demonstrated that ROV teams can present numerous benefits to hospital pharmacies, including improved efficiency in order verification and offering pharmacy support when on-site staff are not available. Since its inception in 2022, the impacts of the Bon Secours Mercy Health (BSMH) Health System ROV program have not been formally assessed. The objective of this study is to identify the perceived social impact of the BSMH ROV program and compare it against measured productivity data.

**Methods:**

In this observational, retrospective, multi-site study, the productivity and social impact of the BSMH ROV program was evaluated, and pre-implemented order verification data were analyzed. The primary endpoints included orders verified per full-time equivalent (FTE) per hour and the percentage of all orders verified by the ROV team as metrics of productivity. Secondary endpoints included pharmacists’ perceptions of the ROV program, which were evaluated through a corporation-wide questionnaire approved by a research committee to minimize bias and promote anonymity. Exploratory endpoints included sub-analyses of questionnaire responses and were implemented as optional questions at the end of the questionnaire. The primary and secondary endpoints were compared to evaluate perceived versus actual impact of the BSMH ROV team.

**Results:**

Final results to be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions to be presented at the 2025 Ohio Pharmacy Residency Conference.

**Risk Factors for Heparin Sensitivity Utilizing a Heparin Anti-Xa Monitoring Protocol**

Mary Marogi, PharmD – PGY1 Pharmacy Resident at Trinity Health Oakland Hospital

Griffin Calme, PharmD, BCCCP; Richard Valone, PharmD, BCPS

**UAN:** 0048-0000-25-095-L01-P

**Learning Objectives:**

1. Review pharmacokinetic principles related to administration of IV heparin
2. Identify risk factors for heparin sensitivity when using weight-based heparin dosing

**Purpose:**

In 1993, findings from Raschke et. al demonstrated that weight-based heparin dosing nomograms are superior to fixed-dose nomograms. However, there have been limited studies investigating risk factors associated with increased heparin sensitivity when using weight-based heparin dosing. The purpose of this study was to identify risk factors for heparin sensitivity using a weight-based heparin anti-factor Xa (aFXa) monitoring protocol.

**Methods:**

This single-center, retrospective cohort study evaluated risk factors for heparin sensitivity with a weight-based heparin aFXa dosing nomogram for patients admitted to Trinity Health Oakland Hospital from April 1st, 2023 through December 31st, 2024. The primary endpoint was the incidence of supratherapeutic initial heparin aFXa levels following the initiation of intravenous (IV) heparin therapy. Risk factors with a p-value <0.2 in univariate analysis were included in the multivariate logistic regression.

**Results:**

One hundred and thirty-nine IV heparin orders were included in the study. Findings from the study demonstrated that patients aged greater than 70 years exhibited a higher reported incidence of supratherapeutic initial heparin aFXa levels compared to patients aged less than 70 years (OR: 1.63; P-value = 0.003; CI: 1.56-9.15). Furthermore, the data analysis indicated that female patients demonstrated a greater incidence of elevated initial heparin aFXa levels compared to their male counterparts (OR: 2.79; P-value =0.021; CI: 1.12-6.67). Lastly, patients weighing less than 60 kilograms were identified as having a reduced incidence of supratherapeutic aFXa levels relative to those weighing more (OR: 0.24; P-value = 0.004; CI: 0.09-0.63).

**Conclusions:**

The presence of female sex or age exceeding 70 years constitutes a significant risk factor that enhances an individual's susceptibility to heparin sensitivity when utilizing conventional weight-based heparin dosing protocols. This study underscores the necessity for a more comprehensive investigation into heparin sensitivity to determine the potential need for developing novel dosing nomograms.

**Tranexamic Acid Plus Standard of Care vs Standard Care Alone for the Treatment of Bradykinin Mediated Angioedema**

Ashlyn Marquette, PharmD, PGY-2 Critical Care Pharmacy Resident at ProMedica Toledo Hospital

Stephanee Rhoades, PharmD, BCCCP; Nathaniel Ehni, PharmD, BCCCP

**UAN:** 0048-0000-25-096-L01-P

**Learning Objectives:**

1. Identify how bradykinin mediated angioedema differs from histamine mediated angioedema
2. Review current literature evaluating tranexamic acid for bradykinin mediated angioedema

**Purpose:**

Patients who present to the emergency department (ED) with bradykinin mediated angioedema receive standard treatment with glucocorticoids, epinephrine, histamine 1 antagonists, and Histamine 2 antagonists. However, these treatments target the mechanisms behind histamine mediated angioedema. Tranexamic acid (TXA) has been proposed as a potential treatment for bradykinin mediated angioedema in the ED. The aim of this study is to assess the utility of TXA in addition to standard treatment for any bradykinin mediated angioedema in the ED.

**Methods:**

This was a retrospective, multi-center cohort study. Adult patients who presented with bradykinin mediated-angioedema to any ProMedica ED between January 1, 2021, and July 31, 2024, and received standard care with or without intravenous TXA, were eligible for inclusion. Key exclusion criteria consisted of transfer from outside hospital, member of a vulnerable population, intubated prior to receiving standard treatment with or without TXA, diagnosed with anaphylaxis or urticaria at the time of presentation. The primary endpoint was the rate of intubation in patients who received TXA versus standard of care only. Secondary endpoints included hospital length of stay, duration of mechanical ventilation, and response to treatment.

**Results:**

A total of 116 patients received standard care, and 43 patients received adjunctive TXA. The average patient was a white male with a median age of 63. More patients who received TXA received epinephrine (34.9% vs 22.6%, p=0.117) and fresh frozen plasma (14% vs 6.1%, p=0.189) compared to standard treatment group. The rate of intubation was 4 (9.3%) in patients who received TXA and 4 (3.5%) in those who received standard care (*p*=0.213). Hours of mechanical ventilation were not significantly longer in the standard care group with a mean of 86.64 (40.06) compared to 46.7 (26.37) in the TXA group (*p*=0.169). Hospital length of stay was not significantly longer for patients who received TXA with a median of 3.817 (2.75, 13.067) compared to 3.283 (2.367, 4.617) in the standard care group (*p*=0.09). Significantly more patients in the standard care group (61.7% vs 41.9%) had a partial response to treatment (*p*=0.025). Patients who received TXA were significantly more likely to have a full response (27.9% vs 13%) compared to standard care (*p*=0.027).

**Conclusions:**

TXA may expedite symptom resolution, but it is not clear if TXA improves objective outcomes such as intubation. This trial is limited due to the retrospective nature. Patients who received TXA may have had more severe angioedema due to more patients receiving epinephrine and fresh frozen plasma.

**Evaluation of Pharmacist Preceptors’ Self-Identified Motivators to Precept Student Pharmacists completing Pharmacy Practice Experiences**

Kara P. Marshall, PGY1 Pharmacy Resident1,2 – The Ohio State University College of Pharmacy1/The Ohio State General Internal Medicine Clinics2

Julie Legg, PharmD, FNAP2; Sarah Leupold, PharmD1,2; Kelli D. Barnes, PharmD, BCACP, FAPhA2

**UAN:** 0048-0000-25-097-L04-P

**Learning Objectives:**

1. Identify and analyze intrinsic and extrinsic motivators that drive pharmacists to serve as preceptors for student pharmacists during their IPPEs and APPEs
2. Compare differences in pharmacists' motivations to precept student pharmacists based on preceptor characteristics and demographics

**Purpose:**

The purpose of this study is to explore and analyze the intrinsic and extrinsic motivators that influence pharmacists to serve as preceptors for student pharmacists during their Introductory and Advanced Pharmacy Practice Experiences (IPPEs and APPEs). Additionally, the study aims to address the challenges faced by pharmacy schools in maintaining an adequate and diverse preceptor pool, while contributing to the limited research on self-identified motivators specific to pharmacist preceptors.

**Methods:**

IPPE and APPE preceptors affiliated with The Ohio State University College of Pharmacy were surveyed about intrinsic and extrinsic motivators to precept using an electronic survey created via QualtricsTM software. The survey remained open for a one-month period with a reminder email sent at two weeks. Survey questions assessed the following information:

* Questions on demographics and job-related characteristics
* The perceived importance of 12 intrinsic and 20 extrinsic motivators to precept student pharmacists rated on a four-point Likert scale (very important, important, slightly important, not important)
* Selection of their top three "very important" motivators to precept student pharmacists

Descriptive statistics were used to summarize motivator ratings/rankings and inferential statistics will be used to explore differences based on preceptor characteristics and demographics.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Evaluating the Accuracy of L-mMRC Severity Tool in Staging COPD in the Skilled Nursing Setting**

Violet Martin, PharmD, PGY1 Pharmacy Resident at University of Cincinnati College of Pharmacy, Emily Nguyen, PharmD, Mirabel Eghombi, PharmD, Patricia Wigle, PharmD, BCPS, BCACP, FCCP, Casondra Seibert, PharmD, BCGP, FASCP

**UAN:** 0048-0000-25-098-L01-P

**Learning Objectives:**

1. Assess patient COPD ABE designation using the L-mMRC tool
2. Evaluate classes of COPD medications commonly used COPD
3. Evaluate the number of patients receiving GOLD guideline therapy

**Purpose:**

COPD was the sixth leading cause of death in the United States in 2020. COPD results in 15.4 million physician visits, 1.5 million emergency departments visits, and 726,000 hospitalizations annually.In geriatric patients, physical and cognitive changes present challenges in disease state management including difficulty in diagnosis, inappropriate medication administration, and increased number of comorbidities. Pharmacist intervention in COPD management has been associated with significant reduction in hospitalizations, improved medication adherence, and reduced health-care costs.However, treatment of COPD patients per the GOLD guidelines is difficult when clinical assessments are not adapted to patient level-of care, cognition, and ambulatory status. The L-mMRC is a new assessment tool developed by consultant pharmacists in collaboration with skilled nursing facility (SNF) registered nurses and administrative staff. Compared to the mMRC or CAT, the L-mMRC incorporates long-term care resident self-performance codes for ambulation and does not require patient self-reporting.

**Methods:**

This study aims to evaluate the accuracy of the L-mMRC versus the mMRC in staging COPD patients in the skilled nursing setting. Study participants will be SNF residents ≥ 65 years old with an active COPD diagnosis located in select facilities from August 2024 to January 2025. Patients will be excluded from the study if they have an active asthma diagnosis or are receiving hospice care. Patients who meet study inclusion criteria will be evaluated using the L-mMRC. Assessment results will be compared against the mMRC or CAT assessment to determine if the L-mMRC tool staged the patient in the appropriate GOLD Guideline ABE group. Primary outcome will be compared to mMRC and CAT score for accuracy of GOLD staging.

**Results:**

Research in progress

**Conclusions:**

In progress

**Implementation of an Evidence Based Skin and Soft Tissue Infection Algorithm at a Large Community Health System**

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Cole Luty, PharmD, BCPS; Jamie Gaul, PharmD, MBA, BCPS; Christina Ford, PharmD, BCPS

**UAN:** 0048-0000-25-099-L01-P

**Learning Objectives:**

1. Describe and analyze characteristics of skin and soft tissue infections to determine eligibility for oral antibiotic treatment.
2. Evaluate the impact of an evidence-based treatment algorithm for skin and soft tissue infections on resource use and antibiotic stewardship.

**Purpose:**

Skin and soft tissue infections (SSTIs) are common indications for emergency department visits and hospital treatments. Classified as purulent or non-purulent, the primary bacterial pathogens involved are *Staphylococcus aureus* and beta-hemolytic streptococci. Methicillin-resistant *Staphylococcus aureus* (MRSA) is commonly involved with purulent infections, while methicillin-susceptible *Staphylococcus aureus* (MSSA) and beta-hemolytic streptococci are responsible for non-purulent infections. Treatment is guided by suspected pathogens, wound location, and severity. However, the absence of culture data often leads to broad-spectrum antibiotic overuse, including unnecessary coverage for gram-negative organisms and MRSA. Despite limited updates to SSTIs treatment guidelines since 2014, MRSA infections and SSTIs continue to rise, increasing healthcare costs. SSTI-related expenses grew from $4.8 billion in 2000 to $15 billion in 2012, largely due to hospital admissions and excessive broad-spectrum antibiotic use. A recent study found only 20.1% of treatments fully adhered to guidelines, with overuse of antibiotics after simple abscess drainage. The purpose of this study is to identify opportunities for optimization of antimicrobial and resource stewardship through an evidence-based algorithm for inpatient evaluation and treatment of SSTIs.

**Methods:**

This research project evaluated treatment strategies for hospitalized SSTIs patients before and after implementing an evidence-based treatment algorithm in conjunction with an inpatient order set. Patients at least 18 years old with a primary hospital discharge diagnosis of SSTIs were included. Exclusions applied to complicated infections (e.g., hardware-associated, bone/joint involvement, surgical site, periorbital, perineal, bite-related, trauma-related, diabetic foot, odontogenic, or recurrent infections defined as >3 occurrences/year), neutropenia (absolute neutrophil count [ANC] <500 cells/mcL), active malignancy, transfers, care refusal, or discharge against medical advice. The primary outcome was comparing the incidence of inpatient admissions for non-purulent and purulent SSTIs receiving treatment under the order set to those under standard of care. Secondary outcomes evaluated order set usage and patient care related outcomes. This included average total days of antibiotic therapy, appropriate empiric broad spectrum antibiotic usage, appropriate incision and drainage (I&D) culture collection, 30-day hospital readmissions, hospital length of stay, and incidence of SSTIs by infection severity.

**Results/Conclusion:**

Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Optimizing Insulin Infusion Protocols Across a Health System**

Melissa Mezy, PharmD, PGY1 Pharmacy Resident at Corewell Health Dearborn Hospital

David Wilpula, PharmD, BCPS

**UAN:** 0048-0000-25-100-L01-P

**Learning Objectives:**

1. Describe effectiveness of the modified insulin infusion protocols in terms of time blood glucose is within, above and below glycemic target.
2. Describe effectiveness of the modified insulin infusion protocols in terms of incidence of hypoglycemia.
3. Describe strengths and weaknesses of the modified insulin infusion protocols, in comparison to last years research on the old protocols.

**Purpose:**

As of July 1st 2024, insulin infusion protocols have been harmonized to serve as the mainstay protocols for Corewell Health East and South Health Systems within the state of Michigan. Previous protocols consisted of 11 various protocols within Corewell Health East (CHE) and Corewell Health South (CHS) for specific indications and with varying glycemic targets. To achieve synchrony within the Corewell Health System as a whole, the protocols have been simplified to 4 major protocols (hyperglycemic crisis, critical care/general adult care, cardiovascular surgery and obstetrics). We aim to compare the glycemic control of the new protocols to the older ones.

**Methods:**

Using existing data from the 2023-2024 MUE on the previous infusion protocols within Corewell Health East, we will compare similar variables to the modified protocols to determine effectiveness of glycemic control. Collected variables for data analysis that will assess efficacy of protocols will include percentages of times that blood sugars were below, within and above therapeutic range, as well as number of hypoglycemic events per 100 patient days. Baseline assessments will be collected for patients as well using Epic, and will include demographic information (MRN, age, sex, race, weight, BMI), insulin order details, respective protocols utilized and admission/discharge times. Data will encompass values from August 1st, 2024 throughout December 1st, 2024 for a total of 1,228 patients within CHE and CHS.

**Results:**

Results to be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions to be presented at the Ohio Pharmacy Residency Conference.

**Outcomes Associated with QTc Monitoring in Patients Receiving Oral Oncolytic Therapy**

Shaunie Miller, PharmD, PGY-2 Pharmacy Resident at The Christ HospitalAnli McCoy, PharmD, BCOP; Kathryn Weber, PharmD, BCPS, BCCP; Tim Hamer, PharmD, BCOP; Wendy Oppong, PharmD Candidate; Shelby Moore, PharmD, BCOP

**UAN:** 0048-0000-25-101-L01-P

**Learning Objectives:**

1. Identify risk factors for QT prolongation.
2. Discuss impact of monitoring patients on oral oncolytic therapy who are at a high risk for QT prolongation.

**Purpose:**

Advancements in precision medicine have led to the use of targeted oncologic therapies. While these therapies are effective at treating cancer, they often produce many off-target effects. One such effect is prolongation of the QT interval, which can put patients at risk of developing deadly arrhythmias, such as torsades de pointes. The purpose of this study is to assess whether monitoring patients receiving oral oncolytic therapies that carry a high risk of QT prolongation results in a reduction in adverse cardiovascular events or death.

**Methods:**

This is an institutional review board-approved retrospective cohort study of adult patients who have received either nilotinib, pazopanib, sunitinb, vandetanib, or ribociclib at a single institution. Patients were excluded if they had a history of congenital long QT syndrome or discontinued therapy for any reason other than cardiac adverse events within two weeks after initiation. The study compares those who received electrocardiogram (ECG) monitoring versus those who did not receive ECG monitoring during treatment. The primary outcome was the composite occurrence of torsades de pointes, polymorphic ventricular tachycardia, signs or symptoms of serious arrhythmia, or death. Secondary outcomes included the incidence of grades 1-3 QTc prolongation in the group that received ECG monitoring. Each QT value obtained from the ECG was corrected utilizing the Fridericia formula. Categorical outcomes were analyzed using a Chi-Square Test.

**Results:**

Overall, of the 90 patients were included in this study, 54 received ECG monitoring and 34 did not receive ECG monitoring during treatment. Baseline demographics were similar between groups. The primary outcome of the composite occurrence of torsades de pointes, polymorphic ventricular tachycardia, signs or symptoms of serious arrhythmia, or death, was observed in 9 (16.67%) patients who received ECG monitoring versus 2 (5.56%) patients who did not receive ECG monitoring (P=0.115). Additionally, in the group that received ECG monitoring, 10 (18.51%) patients experienced grade 1 QTc prolongation, 4 (7.41%) experienced grade 2 QTc prolongation, and 3 (5.56%) experienced grade 3 QTc prolongation.

**Conclusions:**

In patients who at minimum had at least one ECG obtained after initiation of an oral oncolytic therapy with a high risk of QT prolongation, there was no significant difference in the occurrence of torsades de pointes, polymorphic ventricular tachycardia, signs or symptoms of serious arrythmia, or death, compared to those who received no ECG monitoring.

**Evaluating the Impact of a Pharmacist Driven Emergency Department (ED) Culture Call-Back Program on Hospital Readmission Rates**

Ji Min, PharmD, PGY1 Pharmacy Resident at Mercy Health - Lorain Hospital

Hannah Belfeld, PharmD; Sarah Suffel, PharmD, BCPS, CACP

**UAN:** 0048-0000-25-102-L04-P

**Learning Objectives:**

1. Analyze the impact of a pharmacist driven antimicrobial stewardship program (ASP) on 14-day readmission rates to the ED.
2. Assess the appropriateness of antimicrobial therapy for patients discharged from the ED before and after ASP implementation.

**Purpose:**

Antimicrobial resistance remains one of the most significant global public health concerns occurring primarily due to the misuse of antimicrobial agents. Prescriptions originating from ED providers are often followed up by patients’ primary care providers. This practice has several limitations, including access to care, scheduling challenges, and patient compliance with follow-ups. Combined with the lack of ED follow-up, these factors may contribute to poorer patient outcomes and higher readmission rates. The goal of this study was to evaluate the effectiveness of a pharmacist driven ASP in the ED of a community-based hospital.

**Methods:**

This retrospective cohort study included adults (≥18 years) who were discharged from the ED before (June 1, 2022 to June 31, 2023) and after ASP implementation (August 1, 2023 to August 31, 2024) with positive culture result for urine, wound, or blood and at least 14 days of documented follow-up within electronic medical record (EMR). Patients managed solely by ED providers during post ASP-implementation were excluded. The primary outcome was to compare the 14-day ED readmission rate before and after ASP implementation. Secondary outcomes included evaluation of appropriate antimicrobial selection, treatment duration, unplanned ED readmissions, and confirmed patient contact following a positive culture result before and after ASP implementation.

**Results:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Evaluating the Optimization of Pharmacist Intervention in the Emergency Department for Asymptomatic Bacteriuria**

Alexis Mulvaine, PharmD, PGY1 Pharmacy Resident at OhioHealth Mansfield Hospital

Meghan Bogner, PharmD; Molly Robertson, PharmD

**UAN:** 0048-0000-25-103-L04-P

**Learning Objectives:**

1. Describe indications for treatment of asymptomatic bacteriuria
2. Discuss pharmacist involvement in the culture call back process in the emergency department
3. Outline methods and analyze primary and secondary outcomes

**Purpose:**

Current treatment and institutional guidelines recommend against initiating antibiotics in most patients with asymptomatic bacteriuria. Urinalyses are ordered for most patients in the emergency department, regardless of symptoms, which can lead to over-utilizing antibiotics, increased resistance patterns, and avoidable antibiotic adverse effects. The objective of this study is to evaluate pharmacist intervention utilizing the culture callback process in the emergency department in assessing the appropriateness of antibiotic initiation based on urinalysis results, cultures, and urinary symptoms.

**Methods:**

This quality improvement study was implemented at an acute care hospital and included adult patients discharged on antibiotics for a urinary tract infection lacking urinary symptoms. Exclusion criteria included patients admitted to the hospital, pregnancy, Foley catheters, upcoming endoscopic urologic procedures, and concomitant infections. Due to limitations in pharmacist staffing, patients discharged on weekend days were also excluded from this study. This study utilized a pre- and post-intervention study design to assess the effect of pharmacist intervention in antibiotic appropriateness for asymptomatic bacteriuria over a four-month period. The primary aim of this study was to evaluate days of antimicrobial therapy avoided due to pharmacist recommendation to discontinue therapy in asymptomatic patients. Secondary aims of this study included identifying the percentage of accepted recommendations and comparing urinalysis results to the initiation of therapy in asymptomatic patients.

**Results:**

In the pre-intervention period, 51/356 patients were discharged on antimicrobial therapy. Of these 51 patients, 13 urine cultures were positive, 24 were negative, and 14 patients didn’t have cultures ordered. Similarly in the post-intervention period, 58/345 (16.8%) patients were discharged on antimicrobial therapy. Of these 58 patients, 13 urine cultures were positive, 22 were negative, and 23 patients didn’t have cultures ordered. Pharmacist intervention in recommending the discontinuation of antibiotics based on negative cultures resulted in 37 days of antimicrobial therapy avoided. Most patients discharged on antibiotics based on urinalysis results correlated with positive white blood cells and leukocyte esterase. There were nine patients discharged on antibiotics based on a negative UA.

**Conclusions:**

Pharmacist intervention in the culture call back process in the emergency department resulted in a reduction of antimicrobial therapy in asymptomatic patients. There are multiple areas for improvement highlighted in this quality improvement study including the need for education surrounding urinalysis and urine culture ordering in the emergency department and the indications for antimicrobial therapy in asymptomatic bacteriuria.

**Impact of different factors on micafungin dosing for candidemia**

Jacqueline Muscat, PharmD, PGY2 Infectious Diseases Pharmacy Resident at Corewell Health William Beaumont University Hospital

Xhilda Xhemali, PharmD, BCIDP; Christine N. Yost, PharmD, BCIDP

**UAN:** 0048-0000-25-104-L01-P

**Learning Objectives:**

1. Review available literature regarding dosing of micafungin in invasive candidiasis and candidemia in relation to patient body habitus and micafungin MIC
2. Discuss the outcomes of patients with candidemia in relation to micafungin dosing and different patient specific factors

**Purpose:**

Candidemia is one of the most common types of hospital-acquired bloodstream infections. Micafungin is a drug of choice for treatment of invasive *Candida* infections, with doses ranging from 100 mg to 150 mg daily. There is data to suggest that the standard doses may be inadequate for treatment of *Candida* infections in obese patients and in organisms with elevated micafungin MICs. The purpose of this study is to evaluate the impact of micafungin dose in candidemia relative to patient total body weight and micafungin MIC.

**Methods:**

This study is a retrospective chart review evaluating patients admitted to Corewell Health hospitals for candidemia treated with micafungin. Patients ≥ 18 years old with at least one positive blood culture for *Candida*species, who received micafungin for at least 72 hours, and were admitted between January 1, 2014 and June 1, 2024 were included. Patients were excluded if they were treated for more than 48 hours with another antifungal prior to micafungin, had an indwelling catheter or device that could not be removed, or had a candidemia diagnosis made at an outside facility. Patients with multiple admissions during the study period only had their first eligible admission included. The primary outcome was 30-day mortality when stratified by micafungin dose (mg) per patient body weight (kg) per organism-specific micafungin MIC, or mg/kg/MIC. Secondary outcomes included 14-day mortality and 30-day global cure.

**Results:**

A total of 196 patients were included in the analysis, with 168 receiving micafungin 100 mg, 27 receiving 150 mg, and 1 receiving 200 mg. The study population was 54.1% male, with a mean age of 64 years. ICU admission occurred in 79% (22/28) of patients that received 150-200 mg of micafungin (high dose) as compared with 54% (91/168) of patients that received 100 mg (low dose). The median (IQR) total body weight was 82 kg (70-123 kg) and 77 kg (67-91 kg) in the high and low dose groups respectively. The most commonly isolated organisms were *C. albicans* and *C. glabrata.* Further results and analysis will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusions:**

Final conclusions will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Clot It Out: Comparing Prothrombin Complex Concentrate vs. Recombinant Factor VIIa for Surgical Bleeding**

Andrew Nguyen, PGY-1 Pharmacy Resident at Henry Ford St. John Hospital, Detroit

Renee Alexander Paxton, PharmD, BCPS, BCCCP; Joseph Buck, MD; Christopher Giuliano, PharmD, MPH; Stephanie Edwin, PharmD

**UAN:** 0048-0000-25-105-L01-P

**Learning Objectives:**

1. Review literature comparing prothrombin complex concentrate (PCC) vs. recombinant factor VIIa (rFVIIa) in surgical bleeding.
2. Evaluate the comparative safety and efficacy of PCC versus rFVIIa in surgical patients.

**Purpose:**

Perioperative bleeding is a significant challenge in surgical patients, contributing to increased morbidity and mortality. Prothrombin complex concentrate (PCC) and recombinant factor VIIa (rFVIIa) are pharmacologic agents used to manage bleeding, yet comparative data outside cardiac surgery remains limited. This study evaluates the safety and effectiveness of PCC versus rFVIIa in surgical patients.

**Methods:**

This is a multicenter, retrospective cohort study conducted across six southeast Michigan hospitals. Adult surgical patients who received PCC or rFVIIa for the treatment of perioperative bleeding from 2016 to 2024 were included. Patients were excluded if pregnant, had inherited coagulopathies, or received treatment for indications other than surgical bleeding. The primary outcome was in-hospital mortality. Secondary outcomes included time to mortality, total blood product utilization (composite, PRBC, FFP, platelets, cryoprecipitate) at predefined intervals, hospital and ICU length of stay, mechanical ventilation duration, rebleeding events, and thromboembolic complications.

**Results:**

A total of 54 PCC and 59 rFVIIa patients (median initial dose PCC 25.9 units/kg [IQR 22.7–37.7] vs. rFVIIa 46.4 mcg/kg [IQR 33.7–87.4]) were included in the preliminary analysis. No significant difference was observed in in-hospital mortality between PCC and rFVIIa (PCC 44% vs. rFVIIa 29%, p = 0.08). When adjusting for confounding variables using logistic regression, the odds ratio for in-hospital mortality with rFVIIa compared to PCC was 3.25 (95% CI 0.72–14.59). Blood product utilization, including composite products, PRBC, FFP, platelets, and cryoprecipitate was similar between groups up to 120 hours post-administration (except for composite blood products from 12 to 24 hours). Time to mortality, length of hospital stay, ICU length of stay, and duration of mechanical ventilation were comparable between groups. No significant difference was noted in episodes of rebleeding events (PCC 48% vs. rFVIIa 31%, p = 0.055) or thromboembolic events (PCC 18% vs. rFVIIa 7%, p = 0.06).

**Conclusions:**

Based on preliminary analysis, there was no significant difference in in-hospital mortality between adult surgical patients treated with PCC vs rFVIIa for preoperative bleeding management.

**Evaluation of Safety in Alteplase vs. Tenecteplase in Acute Ischemic Stroke**

Sandi Nuzha, PharmD, PGY1 Pharmacy Resident at Corewell Health Dearborn Hospital, Michigan

Mohamad Kobaia, PharmD Candidate 2025; Jessica Jones, PharmD, BCPS, BCCCP

**UAN:** 0048-0000-25-106-L05-P

**Learning Objectives:**

1. Evaluate the safety of tenecteplase compared to alteplase in acute ischemic stroke (AIS) patients by assessing the incidence of bleeding events.
2. Compare the survival rates to hospital discharge and changes in NIHSS scores between AIS patients treated with tenecteplase and those treated with alteplase.

**Purpose:**

Alteplase is the standard treatment for acute ischemic stroke (AIS) and the only FDA-approved fibrinolytic. Tenecteplase, a genetically modified plasminogen activator, is an alternative with greater fibrin specificity, longer half-life, and shorter administration time endorsed by national guidelines. Despite non-inferiority trials demonstrating similar safety profiles, local observations at Corewell Health East (CHE) suggest a possible trend of increased bleeding with tenecteplase, warranting further investigation.

**Methods:**

A multicenter retrospective chart review was conducted on AIS patients aged ≥18 who received alteplase or tenecteplase within 4.5 hours of stroke onset at CHE sites between July 2023 and July 2024. The primary endpoint was the incidence of bleeding events, including intracranial hemorrhage or clinically significant bleeding. Secondary endpoints included survival to hospital discharge and changes in NIHSS scores. Statistical analysis included Chi-square and T-tests.

**Results:**

Preliminary findings demonstrate that among 211 patients (106 alteplase, 105 tenecteplase), there was no significant difference in major or minor bleeding events. Major bleeding occurred in 7 (6.6%) of the alteplase group versus 5 (4.8%) of the tenecteplase group (p = 0.77). Notably 40% (2/5) of major bleeding events in the tenecteplase group occured in patients who underwent thrombectomy, whereas no major bleeding cases in the alteplase group involved thrombectomy. Minor bleeding also occured in 11 (10.3% )of the alteplase group versus 8 (7.6%) of the tenecteplase group. NIHSS scores improved in both groups, with a reduction of 3.3 and 4.6 in the alteplase and tenecteplase groups respectively, though not statistically significant. 98.1% receiving alteplase survived to hospital discharge compared to 97.1% receiving tenecteplase.

**Conclusion:**

Anecdotal observations at CHE initially suggested a potential increase in bleeding events following the switch to tenecteplase. However, our data revealed no statistical difference in major bleeding events between the thrombolytic agents. We did observe that some bleeding events associated with tenecteplase could potentially be attributed to thrombectomy. Additionally, our data demonstrated a numeric trend of more minor bleeding with alteplase, which is counter to the initial hypothesis of increased minor bleeding events in the tenecteplase group.

**High-Dose Nitroglycerin for Sympathetic Crashing Acute Pulmonary Edema (SCAPE): A Retrospective Review**

Ashlyn Okada, PharmD – PGY1 Pharmacy Resident at Miami Valley Hospital, Dayton, OH

Elizabeth Svelund, PharmD, BCPS, BCCCP; Nicholas Summers, PharmD

**UAN:** 0048-0000-25-107-L01-P

**Learning Objectives:**

1. Review the current literature surrounding nitroglycerin for SCAPE
2. Explain the role of high dose nitroglycerin infusions in SCAPE

**Purpose:**

Sympathetic crashing acute pulmonary edema (SCAPE) is characterized by a rapid onset of respiratory distress due to increased sympathetic outflow and excessive afterload, requiring prompt resuscitation and management. Previous studies have shown that early use of nitroglycerin and non-invasive positive pressure ventilation improve symptoms in this patient population; however, sample sizes are small. This study aims to compare the emergency department (ED) length of stay (in hours) between the high-dose and the low-dose nitroglycerin group.

**Methods:**

This retrospective chart review includes adult patients treated at a single, Level 1 trauma center, between August 1, 2022, and August 31, 2024. Participants were included if they were 18 years or older, received a nitroglycerin infusion, admission SBP ≥ 160 mmHg, and presented with respiratory distress. Patients were split into two groups: nitroglycerin infusion exceeding 100 mcg/minute within an hour (high-dose) or an infusion less than 100 mcg/minute (low-dose). The primary outcome was emergency department length of stay (ED LOS) in hours. Secondary outcomes included total hospital length of stay, ICU admission and intubation rates, incidence of hypotension, rate of in-hospital mortality, and total nitroglycerin (milligrams) received in the ED. To achieve an 80% power, with an alpha set at 0.05, a sample size of 100 patients was required.

**Results:**

A total of 105 patients were included, 43 (41%) in the high-dose group and 62 (59%) in the low-dose group. Baseline characteristics were similar between the two groups with the exception of initial systolic blood pressure which was lower in the low-dose group (p=0.008). The primary outcome of ED LOS did not demonstrate statistical difference between the two groups, high-dose median ED LOS was 2.57 hours [IQR 2.03-3.06] vs 2.57 hours [IQR 1.88-3.30] in the low-dose group; p = 0.747. ICU admission rates were 41.8% in the high-dose group vs 35.5% in the low-dose group (p= 0.508). There was significant statistical difference in the median total amount of nitroglycerin (mg) received with the high-dose group median 8.7 mg [IQR 3.3-16.8] vs 2.1 mg [IQR 0.85 – 4.5] in the low-dose group. There was one in-hospital mortality found in the low-dose group. ICU admission rate, intubation rates and incidence of hypotension were similar between groups.

**Conclusions:**

This retrospective study demonstrates that there was no significant decrease in ED length of stay in patients who received high-dose vs low-dose nitroglycerin infusions. Although not significant, there were numerically fewer intubations in the high-dose population.

**Assessing Predicted Fludarabine Exposure in Combination with Myeloablative Busulfan Conditioning Regimen for Allogeneic Hematopoietic Cell Transplantation**

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Justin Tossey, PharmD, BCOP; Jiasheng Wang, MD; Demond Handley, MS; Jeremy Sen, PharmD, BCOP

**UAN:** 0048-0000-25-108-L01-P

**Learning Objectives:**

1. Discuss the role of fludarabine in combination with busulfan as myeloablative conditioning for allogeneic hematopoietic cell transplantation
2. Evaluate the limitations of body surface area-based fludarabine dosing strategies and the association with clinical outcomes
3. Examine pharmacokinetic-guided dosing strategies for fludarabine and optimal area under the curve targets

**Purpose:**

The primary aim of this study is to assess if there is a correlation between event-free survival (EFS) and fludarabine pAUC for allogeneic HCT recipients who received fludarabine/busulfan MAC. The secondary aims of this study are to ascertain the optimal fludarabine pAUC in this patient population when assessing mortality data and transplant related toxicities.

**Methods:**

This single-center, retrospective cohort study included adult patients conditioned with myeloablative fludarabine/busulfan prior to an allogeneic HCT at The Ohio State University Comprehensive Cancer Center—James Cancer Hospital in Columbus, Ohio between January 2014 and September 2023. Patients received fludarabine 160 mg/m2 and PK-guided busulfan with target cumulative exposure of 82 mg\*h/L. Graft-versus-host disease (GVHD) prophylaxis consisted of methotrexate and tacrolimus with or without anti-thymocyte globulin. Infection prophylaxis and other supportive care were administered per standard institutional practice. Patients transplanted with cord blood stem cells were excluded. Data were collected to calculate fludarabine pAUC using a previously published population PK model and to assess clinical outcomes data, including EFS, non-relapse mortality (NRM), disease relapse, acute/chronic GVHD, and GVHD-free, relapse-free survival (GRFS). Demographic data and baseline characteristics were collected. The primary outcome of EFS was defined as time spent alive without graft failure, relapse, and NRM.

**Results:**

The aim of this study is to evaluate the association between fludarabine pAUC and clinical outcomes, including EFS, TRM, NRM, relapse, and GRFS. Results to be presented at OPRC.

**Conclusions:**

The results of this study may be hypothesis-generating, leading to future interventional studies targeting a specific predicted or observed fludarabine exposure to optimize outcomes among allogeneic HCT patients.

**Initial Heparin Rates and Time to Goal Anti-Xa and Activated Partial Thromboplastin Time in Patients with Mechanical Circulatory Support**

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**UAN:** 0048-0000-25-109-L01-P

**Learning Objectives:**

1. Review different anticoagulation monitoring strategies and therapeutic targets in mechanical circulatory support patients
2. Discuss the impact of initial unfractionated heparin infusion rates and time to goal anticoagulation

**Purpose:**

Patients receiving mechanical circulatory support (MCS) devices (e.g., Impella®, ECMO, LVAD) should receive anticoagulation to avoid clotting of the circuit and to lower risk of thrombus formation and embolization. Patients at OhioHealth receiving unfractionated heparin (UFH) are capped at an initial rate of 1,000 units/hr, with patients weighing over 83 kg starting at an initial UFH rate under the recommended 12 units/kg/hr. The purpose of this study is to compare time to goal anticoagulation in patients who are weight-capped (> 83 kg) compared to those who are not (≤ 83 kg).

**Methods:**

This was a multi-institutional, retrospective cohort study evaluating adults who received an MCS device during admission from November 1, 2022, and October 1, 2024, who received an UFH infusion monitored by activated partial thromboplastin time (aPTT) or anti-Xa levels while their MCS device was in place. The primary outcome was the percentage of patients in weight-capped (> 83 kg) versus non-weight capped (≤ 83 kg) groups who achieved goal anti-Xa or aPTT within 48 hours of UFH initiation. Secondary outcomes included bleeding and thrombosis events between groups.

**Results:**

A total of 56 patients met inclusion criteria, 27 not weight-capped and 29 weight-capped. Non-weight-capped patients achieved goal anti-Xa or aPTT within 48 hours of UFH initiation in 88.9% compared to 89.7% of the weight-capped group (p = 0.93). There was no significant difference in time to goal between groups. The non-weight-capped group required an average UFH dose of 12.00 units/kg/hr (average weight of 76.66 kg) to meet goal anticoagulation compared to a dose of 12.39 units/kg/hr (average weight of 101.26 kg) in the weight-capped group (p = 0.718). The non-weight-capped group had more bleeding events (4 vs 0, p = 0.031) and there was no difference in thrombosis.

**Conclusions:**

This study found no statistically significant difference in the percent of patients who achieved goal anticoagulation within 48 hours of UFH initiation between groups.

**Evaluating Pharmacist Led Management of Glucagon-like Peptide-1 Receptor Agonists (GLP-1 RA) & Glucose-dependent Insulinotropic Polypeptide/Glucagon-like Peptide-1
(GIP/GLP-1 RA)**

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**UAN:** 0048-0000-25-110-L01-P

**Learning Objectives:**

1. Review the clinical benefits of GLP-1 RA and GIP/GLP-1 RA.
2. Compare the outcomes between pharmacist led management of GLP-1 RA and GIP/GLP-1 RA and usual care.

**Purpose:**

The purpose of this study is to evaluate the impact of pharmacist management on GLP-1 RA and GIP/GLP-1 RA in patients with Type 2 Diabetes Mellitus (T2DM) compared to usual care by a physician.

**Methods:**

This was a retrospective study conducted at Corewell Health William Beaumont University Hospital’s outpatient clinic. Patients who were at least 18 years old, following with a resident physician in the outpatient clinic, with a diagnosis of T2DM, and received an initial prescription for a qualifying agent during the study period of January 1, 2019 to March 31, 2024 were included. The qualifying agents included dulaglutide, liraglutide, oral or injectable semaglutide, and tirzepatide. Patients were stratified into two separate groups based on the care they received: the first in which the GLP-1 RA or GIP/GLP-1 RA was managed by a clinic pharmacist (pharmacist-managed) and the second in which these agents were managed by a resident physician (usual care). Data was collected from the initiation of the GLP-1 RA or GIP/GLP-1 RA to 6 months after or treatment discontinuation (whichever occurred first). The primary outcome was the net change in A1c from baseline to the end of the study period. Secondary outcomes were A1c < 7% at the end of the study period, change in weight from baseline, time to first dose titration of GLP-1 RA and dual GIP/GLP-1 RA, and time to maximum dose of GLP-1 RA or GIP/GLP-1 RA.

**Results:**

This study included 128 patients: 24 pharmacist-managed and 104 usual care. Baseline demographics were similar between both groups. The pharmacist–managed group had a mean reduction in A1c from a baseline of 19.9% compared to 10.2% in the usual care group (p = 0.03). There were 70.8% of patients who achieved an A1c ≤ 7% in the pharmacist-managed group compared to 41.4% in the usual care (p = 0.01). Time to first dose titration of GLP-1 RA or GIP/GLP-1 RA and change in weight from baseline were similar between both groups. The mean time to maximum dose of GLP-1 RA or GIP/GLP-1 RA were 160 days and 94 days in pharmacist-managed and usual care, respectively (p = 0.0005). The pharmacist-managed group had a greater proportion of patients reach the maximum dose.

**Conclusions:**

This study found that pharmacist-led management of GLP-1 RA or GIP/GLP-1 RA resulted in a greater improvement in A1c from baseline to the end of study period compared to usual care.

**Impact of Pharmacist Involvement on Patient Access to PCSK9 mAbs in an Outpatient Academic Cardiology Practice**

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**UAN:** 0048-0000-25-111-L01-P

**Learning Objectives:**

1. Review the role of proprotein convertase subtilisin kexin type 9 monoclonal antibodies (PCSK9 mAbs) in the setting of prevention of atherosclerotic cardiovascular disease (ASCVD).
2. Discuss potential barriers to patient access to PCSK9 mAbs.
3. Evaluate the impact of pharmacist intervention on patient access to PCSK9 mAbs and rates of monitoring completion.

**Purpose:**

The purpose of this study is to evaluate the impact of pharmacist involvement on patient access to PCSK9 mAbs, monitoring completion, and optimal LDL-C target achievement.

**Methods:**

This study was a retrospective, single-center, descriptive electronic medical record review of a cohort of patients in an outpatient cardiology practice of an academic medical center. Adults who have had a visit with a provider at the institution’s cardiology clinics between January 1, 2023, and June 30, 2024, and had evolocumab or alirocumab on the medication list were included in the study. The primary objective of this study was to evaluate the impact of pharmacist involvement on patient access to PCSK9 mAbs. The secondary endpoints included the rates of monitoring completion and optimal LDL-C target achievement.

**Results:**

A total of 72 patients were included in the study, with 39 in the control group (no pharmacist intervention) and 33 in the pharmacist intervention group. In the control group, 30.8% (n = 12) successfully initiated PCSK9 mAb therapy, while in the intervention group, 51% (n = 17) initiated therapy. The mean time to therapy initiation was shorter in the intervention group (42 days) compared to the control group (72 days). Barriers to initiation of PCSK9 mAb therapy included cost (4 versus 2 patients in control versus intervention groups, respectively), resistance to injections (1 versus 3, respectively), and loss to follow-up (0 versus 3, respectively). Among patients who have initiated therapy, lipid panels were obtained in 64.5% (n = 20) of the control group and in 82.6% (n = 19) of the intervention group.

Among patients who completed monitoring, 70% (n = 14) of the control group and 47.4% (n = 9) of the intervention group reached their LDL-C goals.

**Conclusions:**

Pharmacist intervention was associated with higher rates of PCSK9 mAb therapy initiation and repeat lipid panel completion. Additionally, patients with pharmacist intervention had shorter time to therapy initiation compared to the control group. Rates of patients meeting LDL-C goal was lower in the intervention group. These findings highlight opportunities for embedded clinic pharmacists to provide closer follow-up to address barriers to therapy and to enhance monitoring to help patients reach their treatment targets.

**Inter-professional quality improvement project in the surgical intensive care unit (SICU) with a focus on the utilization of analgosedation.**

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**UAN:** 0048-0000-25-112-L01-P

**Learning Objectives:**

1. Identify areas to improve upon the use of analgosedation
2. Examine potentially inappropriate utilization of analgosedation

**Purpose:**

The Society of Critical Care Medicine has published guidelines supporting the utilization of analgesia-first based sedation, also known as analgosedation, for critically ill patients. However, staff identified opportunities for improvement to our current utilization and perception of analgosedation. This quality improvement (QI) project seeks to improve the application of evidence-based guidelines regarding analgosedation into our daily institutional practice in the SICU.

**Methods:**

This quasi QI project was approved as a quality improvement determination by the OhioHealth Office of Human Subjects Protections. The study involved a pharmacist-led QI intervention that included a provider and staff education, a survey capturing current practices and perceptions of analgosedation, and finally a quarterly focus on the analgosedation aspect of the unit’s daily rounding checklist. Included within the study were adult patients admitted to the SICU requiring mechanical ventilation with a goal Richmond Agitation Sedation Scale of -1 to +1. We aimed to compare the differences between the pre-intervention and post-intervention study groups with each intervention group covering a 3 month timeframe. The primary outcome was the percentage of patients on propofol 50mcg/kg/min or greater without the use of an opioid infusion.

**Results:**

The overall percentage of patients on propofol 50mcg/kg/min or greater without the use of an opioid infusion was 9.6% (7.5% pre-intervention vs. 11.8% post-intervention). Overall percentage of patients on propofol 50mcg/kg/min or greater while on less than fentanyl 100mcg/hour was 20.5% (17.5% pre-intervention vs. 24.2% post-intervention). The mean perception of utilization of analgosedation was 3.5 in the pre-intervention vs. 3.9 in the post-intervention. However, the percent of correct knowledge-based questions ranged from 15.3-92.3% in the pre-intervention and 33-100% in the post-intervention.

**Conclusions:**

Pharmacist-led QI interventions aimed at improving application of analgosedation best practices were not associated with measurable improvement within our SICU. Additionally, survey data suggests ongoing opportunities in analgosedation-related knowledge and perception.

**Droxidopa Versus Midodrine to Facilitate Intravenous Inotrope Weaning in Heart Failure with Reduced Ejection Fraction (HFrEF)**

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The Christ Hospital Health Network, Cincinnati, OH

**UAN:** 0048-0000-25-113-L01-P

**Learning Objective:**

1. Describe the intravenous (IV) inotrope weaning success with the use of droxidopa versus midodrine for patients with heart failure with reduced ejection fraction (HFrEF).
2. Discuss options for management of hypotension in heart failure.
3. Review mechanism of action of droxidopa and midodrine.

**Purpose**:

Patients presenting with acute decompensated heart failure (HF) may require additional hemodynamic support with intravenous (IV) inotropes to increase cardiac contractility. Weaning IV inotropes may be challenging for a variety of reasons, including hypotension. Potential options to aid in hypotension management include oral vasoactive agents such as midodrine and droxidopa. Midodrine is an alpha-1 agonist and droxidopa is an alpha-1 and beta-1 agonist. There is very little data evaluating the use of midodrine and droxidopa for IV inotrope weaning. This study aimed to evaluate the use of midodrine and droxidopa to facilitate IV inotrope weaning for patients with HFrEF.

**Methods:**

This was an institutional review board (IRB) approved, single-center, retrospective cohort study evaluating patients with HFrEF who received IV inotropes and at least two inpatient doses of midodrine or droxidopa between May 2022 and November 2024. Patients were excluded if they received renal replacement therapy during admission, had a durable left ventricular assistance device, received study medications prior to hospital admission, or within 24 hours or during the first three doses of the initial agent. The primary outcome was percentage of patients weaned off IV inotropes with the use of midodrine or droxidopa. Secondary outcomes included time to wean off IV inotropes, number of HF guideline directed medical therapies initiated prior to discharge, readmission within 30 days, and number of patients discharged on droxidopa or midodrine. Data was analyzed utilizing independent chi-square tests, t-tests, and Fishers exact tests where appropriate.

**Results:**

Eighty-three patients met inclusion criteria with 73 patients in the midodrine group and 10 patients in the droxidopa group. There was a significant difference in IV inotrope weaning success in favor of droxidopa, 9 (90%) versus 37 (50.7%), (p=0.019). There was also a significant difference in time to wean off IV inotropes (p=0.025), readmission rates within 30 days (p=0.02), and discharge on droxidopa versus midodrine (p=0.0001) in favor of droxidopa. There was no significant difference in the number of guideline directed HF medical therapies prior to discharge (p=0.82).

**Conclusion:**

In this retrospective, cohort study evaluating patients with HFrEF on IV inotrope support, there was a significant increase in the ability to wean IV inotropes for ≥ 48 hours with the use of droxidopa compared to midodrine. Larger, randomized, controlled trials assessing use of oral vasoactive medications for IV inotrope weaning in HFrEF is recommended.

**Determining the Optimal Enoxaparin Dose Associated with Therapeutic Anti-Xa Levels in Patients with Obesity**

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**UAN:** 0048-0000-25-114-L01-P

**Learning Objectives:**

1. Describe dosing strategies used in patients with obesity for the treatment of VTE with therapeutic enoxaparin from previous literature.
2. Select an appropriate weight-based enoxaparin dose that would likely result in a therapeutic LMWH calibrated AXA level.

**Purpose:**

Therapeutic enoxaparin is utilized for the treatment of venous thromboembolism (VTE). Monitoring low molecular weight heparin (LMWH) calibrated anti-Xa (AXA) levels are recommended in special populations, such as obesity. In this population, there is an increase in hypercoagulability and variable pharmacokinetics leading to supra- or subtherapeutic AXA levels while on enoxaparin. Therefore, monitoring a LMWH calibrated AXA level ensures that both safety and efficacy are maintained throughout the treatment course. Dosing enoxaparin based on LMWH calibrated AXA level has led to a decrease in accumulation and bleeding, but there is not a defined optimal dosing strategy for enoxaparin that results in a therapeutic LMWH calibrated AXA level in patients with obesity.

**Methods:**

This was a multisite, single-health system, retrospective cohort study approved by the Institutional Review Board. Data was generated by electronic medical record from 1/1/2019 to 1/31/2024. Patients > 18 years of age with a body mass index (BMI) of > 30 kg/m2 with a weight > 49.5 kg, at least three consecutive doses of therapeutic enoxaparin greater than 40 mg twice daily, at least one LMWH calibrated AXA level drawn with a goal LMWH calibrated AXA level of 0.5-1.1 units/ml, and admission to UC Health West Chester Hospital or University of Cincinnati Medical Center were included. The primary outcome was the median enoxaparin dose (mg/kg) associated with a therapeutic LMWH calibrated AXA level. Subgroup analysis was performed to determine the therapeutic enoxaparin dose (mg/kg) stratified by weight and BMI. Additionally, the percent difference from the initial dose to the dose resulting in therapeutic LMWH was analyzed. Safety endpoints include incidence of supratherapeutic LMWH calibrated AXA levels and bleeding outcomes. LMWH calibrated AXA levels were divided into the following groups: subtherapeutic, therapeutic, or supratherapeutic. Data analyzed through Kruskal-Wallis One Way ANOVA on Ranks for nonparametric data and One Way ANOVA for parametric data.

**Results:**

After screening 3089 LMWH calibrated AXA levels, 126 levels were included for the primary outcome: 7 in subtherapeutic group, 100 in therapeutic group, 19 in supratherapeutic group. 56 levels were included only for the safety endpoint analysis. The median enoxaparin dose in therapeutic group was 0.9 mg/kg (p=0.061).

**Conclusions:**

An enoxaparin dose of 0.9 mg/kg twice daily resulted in therapeutic LMWH calibrated AXA levels. The recommended therapeutic enoxaparin dose of 1 mg/kg twice daily from previous literature has an increased risk of supratherapeutic LMWH calibrated AXA levels from occurring.

**The Impact of Pharmacist Interventions on Persistence in Patients with Chronic Kidney Disease**

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**UAN:** 0048-0000-25-115-L01-P

**Learning Objectives:**

1. Analyze the impact of pharmacist interventions on medication persistence in CKD patients
2. Evaluate common barriers to medication persistence and assess effectiveness of pharmacist interventions

**Purpose:**

The purpose of this single-site, retrospective, cohort, institutional review board approved study was to determine whether community-based specialty pharmacist interventions have an impact on persistence to study medication regimens in patients with chronic kidney disease (CKD).

**Methods:**

This study was conducted at a community-based specialty pharmacy. The primary outcome was the comparison of persistence between patients who were active in the Core program for pharmacist interventions and those who were refill reminder only (RRO). Secondary outcomes included identifying barriers to medication access that prevented persistence with a focus on adverse events and financial considerations as well as subsequent pharmacist interventions. Patients were identified between 01/1/2023-09/30/2024 if they have received either patiromer, tenapanor, calcifediol or sodium zirconium cyclosilicate to treat CKD. Patients active in a pharmacist-led medication management program and with diagnosis of renal disease were stratified to the intervention group (Cohort 1). Patients that opted out were stratified to the control group (Cohort 2). Patients with a diagnosis of renal transplant, pregnant or <18 years old, or death were excluded. Persistence was measured by days with continued therapy with a permissible gap of < 90 days between refills. Persistence between Cohort 1 and 2, demographic data and primary and secondary outcomes were evaluated using appropriate statistical analysis.

**Results:**

There was a total of 174 patients identified for the study period 1/1/2023-9/30/2024 and 32 were excluded from the study based on exclusion criteria. There were 118 patients in Cohort 1 and 24 in Cohort 2. The primary outcome of persistence in Cohort 1 was 64.7% compared to 45.8% in Cohort 2 (p= 0.0830).  For the secondary outcomes of barriers, 29 patients were identified with barriers of financial hardship as the most common with 22 patients followed by adverse events and other. The subsequent pharmacist interventions were primarily to provide patients with a copay card.

**Conclusions:**

This study demonstrates that pharmacist-led interventions within a community-based specialty pharmacy setting have the potential to enhance persistence with CKD medications. This data reinforces the value of pharmacist-led medication management programs in improving patient persistence and therapeutic outcomes. Further research with a larger sample size is necessary to optimize strategies for enhancing medication persistence in patients with CKD.

**Assessing the Process of Parenteral Nutrition Administration at University Hospitals Community Hospitals**

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**UAN:** 0048-0000-25-116-L01-P

**Learning Objectives:**

1. Describe the different types of parenteral nutrition
2. Recognize errors that occur with parenteral nutrition administration

**Purpose:**

Parenteral nutrition is a high-alert therapy that is susceptible to many types of errors that lead to potential adverse events. To reduce errors associated with parenteral nutrition, there are guidelines in place by ASPEN and other organizations, including local guidelines within our health system. Timing, ordering, administration, and monitoring are all aspects included in the guidelines. The purpose of this project is twofold, one to educate nurses and obtain an understanding of their proficiency surrounding parenteral nutrition administration at our local site, and two, to evaluate parenteral nutrition administration practices across other community hospitals across the University Hospitals Health System.

**Methods:**

There were two parts to this research project, the drug use evaluation and the nursing education campaign. A retrospective chart review within the health system of University Hospitals will be performed to assess the parenteral nutrition administration process from July 31, 2024 through October 31, 2024. The data collected from the chart review includes the type of parenteral nutrition infusion, rate of infusion, new start or continuing therapy, times hung, stop times, and the time the parenteral nutrition was ordered, to identify if there are any opportunities for improvement and to decrease administration errors. For the nursing education campaign, education on parenteral nutrition administration will be provided to nurses at University Hospitals Ahuja Medical Center. These nurses will also be provided a survey to assess their proficiency with parenteral nutrition administration. The nursing education campaign and survey will be conducted at University Hospitals Ahuja Medical Center since parenteral nutrition is not frequently ordered. This chart review, nursing education, and survey will be used to identify areas of improvement for parenteral nutrition administration.

**Results:**

Will be discussed at the OPRC meeting on May 22.

**Conclusions:**

Will be discussed at the OPRC meeting on May 22.

**The impact of integrating a pharmacist into postpartum hypertension management**

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**UAN:** 0048-0000-25-117-L01-P

**Learning Objectives:**

1. Describe the pharmacist’s role in a postpartum hypertension monitoring clinic.
2. Identify barriers to integrating a pharmacist into the postpartum care team.

**Purpose:**

Hypertensive disorders of pregnancy (HDP) affect approximately 10% of all pregnancies. Fifty percent of these women remain hypertensive after delivery, and 10% of women without HDP develop de novo hypertension. Postpartum care visits are often scheduled six weeks after delivery, leaving at-risk patients without close blood pressure monitoring. Pharmacists possess the appropriate skills to remotely monitor for and treat hypertension under collaborative practice agreements.

**Methods:**

This is a prospective, quality improvement project conducted at one family medicine office which primarily treats patients that are uninsured or carry Medicaid or Medicare insurance. Patients were enrolled from November 1st, 2024 through December 31st, 2024. Physicians sent electronic referrals to the pharmacist for postpartum hypertension (PPHTN) monitoring. The pharmacist initiated contact with the patient within three to five days of discharge. Each appointment involved thoroughly reviewing the patient’s chart, obtaining patient-reported blood pressures, providing medication education, adjusting medications when appropriate, and discussing any patient-perceived barriers to care. Pharmacist impact was evaluated by comparing initial, first remote, and final blood pressures. The cohort was also evaluated on appointment adherence, self-perceived barriers, and hospitalizations. Surveys were sent to patients and providers to review satisfaction with the program.

**Results:**

A total of 23 patients were referred to the pilot program. Eleven patients declined services or were unsuccessfully contacted, two patients never attended scheduled appointments, six patients attended one appointment, and four patients attended two or more appointments. Regarding cardiovascular history, five patients (21.7%) had a history of a HDP and three patients (13%) had pre-existing hypertension. Average initial, first remote, and final blood pressures were 119/75 mmHg, 126/85 mmHg, and 116/75 mmHg, respectively. Overall, 16 of 30 scheduled appointments were completed. There was an average of 2.5 appointments scheduled and 1.3 appointments attended per patient, and a 46% appointment adherence rate. No patient surveys were returned, however two providers returned surveys with favorable feedback.

**Conclusions:**

While the pilot received a positive response from providers, there are several barriers that need to be overcome, including low patient engagement, difficulty building trust, and poor blood pressure cuff access. To promote success moving forward, the program could only enroll patients with high risk factors or interest in the program, consider expanding pharmacy services to pregnancy care and patients of other socioeconomic background, and work to improve blood pressure cuff access.

**Nurse-Driven IV Heparin Protocol With and Without Pharmacist Verification:
Quasi-Experimental Pre/Post Analysis**

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David Wilpula, PharmD, BCPS; Faieza Kassab, PharmD Candidate 2025; Noah Nasser, PharmD Candidate 2025

**UAN:** 0048-0000-25-118-L01-P

**Learning Objectives:**

1. Describe the advantages and disadvantages of pharmacist verification in heparin dosing protocol
2. Describe the advantages and disadvantages of clinical decision support guided dosing in heparin protocol

**Purpose:**

Many hospitals use nurse-driven IV heparin protocols to manage heparin dosing. Quality of evidence evaluating pharmacist verification (PV) in the heparin dosing process is limited. We aim to compare protocol performance in patients receiving heparin infusion with PV vs clinical decision support (CDS) guided dosing.

**Methods:**

This retrospective quasi-experimental pre-post analysis included patients treated with IV heparin at three large academic hospitals in Southeast Michigan. The PV group included patients admitted between July 2023 and July 2024, while CDS group included patients admitted after implementation of CDS guided dosing (between August 2024 to December 2024). Those who were on heparin for treatment of atrial fibrillation, Impella, or extracorporeal membrane oxygenation were excluded. Protocol performance was assessed by adherence score, time to first therapeutic aPTT, time to second consecutive therapeutic aPTT, and percentage of patients who experienced critical supratherapeutic aPTT.

**Results:**

105 PV and 105 CDS patients were enrolled. Adherence score was higher in CDS vs PV in the overall population (83.0% vs 77.2%, p=0.001), venous thromboembolism (VTE) cohort (82.3% vs 75.6%, p=0.012), and acute coronary syndrome (ACS) cohort, (84.2 % vs 78.9%, p=0.03). Among variances, “wrong weight” was significantly less in CDS vs PV (3.0% vs 9.2%, p=0.004) and “omission of action” was significantly higher in CDS vs PV (13.5% vs 7.5%, p=0.025). No differences were observed in median hours to first therapeutic aPTT (CDS 15.7, PV 16.2, p=0.72) and to second consecutive therapeutic aPTT (CDS 30.0, PV 27.1, p=0.38). No difference was observed in patients experiencing critical supratherapeutic aPTT (CDS, 29.5% vs PV, 22.9%, p=0.27).

**Conclusion:**

Protocol performance measures were similar in both groups, with CDS demonstrating better adherence scores vs PV. CDS guided dosing appears to be a suitable alternative to PV in this population. The combined effect of CDS guided dosing in addition to PV remains an area for further study.

**Clinical Pharmacist Impact on Blood Pressure Management in Spontaneous Intracerebral Hemorrhage**

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Laura Kline, PharmD, BCEMP, BCPS; Amy Durell, PharmD, BCPS

**UAN:** 0048-0000-25-119-L01-P

**Learning Objectives:**

1. Review updates to AHA/ASA guidance outlining blood pressure management in spontaneous intracerebral hemorrhage
2. Evaluate impact of clinical pharmacist involvement on achieving blood pressure management goals set forth by AHA/ASA versus system-wide institutional targets

**Purpose:**

Hemorrhagic strokes often occur spontaneously due to uncontrolled hypertension. Sustained blood pressure elevation may lead to hemorrhagic expansion and worsening of clinical outcomes; therefore, timely and controlled blood pressure lowering is crucial for these patients early on or at time of diagnosis. This study aims to fill a gap in literature by evaluating the impact that a clinical pharmacist has on achieving American Heart Association/American Stroke Association (AHA/ASA) time to blood pressure targets and system-wide institutional targets.

**Methods:**

This is a multicenter, retrospective cohort study evaluating clinical pharmacist impact on achieving blood pressure management goals in adult patients presenting to an OhioHealth emergency department (ED) for spontaneous intracerebral hemorrhage between January 1, 2017 and January 1, 2024. Variation in pharmacist staffing models between sites are considered in this study. The primary endpoint is achievement of blood pressure target within 2 hours of ED arrival (AHA/ASA goal), evaluating the influence of clinical pharmacist versus no- or non-clinical pharmacist presence on outcome. Secondary endpoints include clinical pharmacist impact on achievement of blood pressure target within 1 hour of ED arrival (a system-wide institutional goal), incidence of hematoma expansion, hospital/ICU length of stay, and in-hospital mortality. All study aims were analyzed using chi-square test and independent samples t-tests or Wilcoxon rank sum test.

**Results:**

This study includes 306 total patients, of which 153 had clinical pharmacist involvement in their initial care, 128 had no pharmacist involvement and 24 had non-clinical pharmacist involvement. In the clinical pharmacist group, 86.93% of patients achieved target BP within the AHA/ASA goal time of 2 hours, compared to 16.41% (no pharmacist involvement) and 62.5% (non-clinical pharmacist involvement) (p <0.001). Achievement of the system-wide institutional BP target time of 1 hour showed similar results (55.56% vs 4.7% vs 25%; p <0.001). Many of the secondary outcomes require further research and examination of confounding variables, as it was found that patients with clinical pharmacist involvement were found to be more likely to be taking a blood thinner prior to arrival and to have a longer average hospital LOS (16.84 days(d) vs 9.99d vs 9.73d), longer ICU LOS (7.23 d vs 5.7 d vs 4.17 d), more incidence of hematoma expansion (24.3% vs 15.2% vs 12.5%), and an in-hospital mortality of 16.34% vs 8.59% vs 20.83%.

**Conclusion:**

Clinical pharmacist involvement significantly improves incidence of achieving AHA/ASA and system-wide institutional blood pressure management goals. These findings suggest that there is added benefit of having a clinical pharmacist present at bedside when patients with spontaneous intracerebral hemorrhage are assessed upon arrival or treatment in the ED.

**Pharmacist Impact on Retention in Care of Patients with HIV**

Vindya Perera, PharmD, MPH, BCPS - PGY2 Ambulatory Care Pharmacy Resident at The Ohio State University Wexner Medica Center

Ashley Lipps, MD; Carlos D. Malvestutto, MD, MPH; Susan L Koletar, MD; Kelci Coe, MPH; Aaron J. Bagnola, PharmD, BCPS, BCCP; Yesha Patel, MD; Natalie Nielsen, PharmD, BCACP, AAHIVP

**UAN:** 0048-0000-25-120-L02-P

**Learning Objectives:**

1. Review barriers to retention in care for patients with HIV
2. Describe the impact of multidisciplinary resources on HIV care

**Purpose:**

The Human Immunodeficiency Virus (HIV) epidemic continues to pose a significant public health problem. In 2019, the United States launched Ending the HIV Epidemic (EHE) to reduce new HIV infections by 90% by 2030. Efforts are initially focused where 50% of new HIV diagnoses occur; Franklin County, Ohio is designated as a priority jurisdiction. The HIV Care Continuum was developed to identify barriers and assess efficacy of programs. A key measure is retention in care. Multidisciplinary teams have potential to achieve these measures through pharmacist interventions (clinical evaluation for same-day antiretroviral therapy (ART) initiation, assessment of medication tolerability, medication access and counseling). Previous studies of pharmacists’ impact are limited by lack of comparison groups, provider status, and resources to combat barriers. This study aims to determine impact of pharmacist presence on retention in care one year after first visit in a multidisciplinary HIV clinic with resources to help combat potential barriers, including dedicated case management, telehealth, pharmacist assistance in ART access and management, and connection to support services.

**Methods:**

A retrospective cohort of adult patients who presented to the Infectious Diseases Clinic (OSUID) for the first time or who returned to care after ≥ 1 year without HIV follow up between September 1, 2022, and September 30, 2023, when a pharmacist was present in clinic, will compare outcomes to a historical control of patients who followed at OSUID between September 1, 2017, and August 31, 2018. Incarcerated patients will be excluded. The primary outcome will be percentage of patients retained in care one year after first visit. Secondary outcomes will include time to viral suppression and ART initiation, demographics of newly diagnosed patients and those returning to care, association of multidisciplinary intervention on HIV Care Continuum between pre-intervention and post-intervention groups, and association of social determinants of health and adherence barriers on HIV Care Continuum measures. Descriptive statistics will assess baseline demographics, clinical data, and outcomes. Statistical significance will be indicated by a two-sided P value < 0.05. A multivariable logistic regression (MLR) model will be performed to evaluate the primary outcome and clinical response between groups. Variables with a P value < 0.2 in the bivariate analysis will be considered for inclusion in the MLR for each outcome. Adjusted odds ratios will subsequently be calculated.

**Results:**

Results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Outpatient Prescribing Patterns in the Treatment of Insomnia, Depression, & Anxiety by Prescriber Type, Specialty, & Patient Age Group**

Farzana S. Pinky, PharmD - PGY1 Pharmacy Resident at Meijer Pharmacy/Wayne State University

Joseph Fava, PharmD, BCACP; Caitlin E. Rukat, MS; Brian J. Barnes, PharmD, MS

**UAN:** 0048-0000-25-121-L01-P

**Learning Objectives:**

1. Examine the current literature on prescribing patterns for the treatment of mental health disorders
2. Compare prescribing patterns by prescriber type in this study for the treatment of anxiety, depression, & insomnia

**Purpose:**

Despite evidence-based guidelines for the treatment of anxiety, depression, & insomnia, variability in drug selection and dosing exists, particularly among elderly patients. Prior work has compared prescribing patterns of physicians versus mid-level providers in patients with pain or diabetes, however, limited literature exists highlighting prescribing patterns of medications used to treat mental health disorders in the outpatient pharmacy setting. This study will evaluate prescribing patterns for the treatment of anxiety, depression, and/or insomnia in the outpatient setting by prescriber type (mid-level providers vs. physicians), provider specialty, patient age & the frequency of Beers List medication use in patients 65 years & older.

**Methods:**

This is a retrospective, multisite, cross-sectional data review on all electronic prescriptions (E-Rxs) received at a supercenter-based pharmacy chain located in the midwestern United States between June 1, 2022 & December 31, 2023. E-Rxs with diagnosis code(s) (Dx[s]) for anxiety, depression, and/or insomnia were included. The prescribing patterns of physicians vs. mid-level providers were compared as well as rates of Beers List drugs prescribed to patients 65 years & older. Data was analyzed using SAS 9.4.

**Results:**

Among over 32 million E-Rxs, 56% included a Dx(s), with 13,459 for anxiety, 16,340 for depression, & 10,929 for insomnia. Preliminary analysis included drugs with FDA or recommended but off-label indication(s) for the disorder indicated. Of the drugs prescribed to treat anxiety, 91% had indications for anxiety; 88% had indications for depression; 86% had indications for insomnia. The most prescribed drug classes were benzodiazepines (BZD) for anxiety (38%), selective-serotonin reuptake inhibitors (SSRI) for anxiety (37%) & depression (53%), & non-BZD hypnotics for insomnia (44%). Physicians were more likely than mid-levels to prescribe BZDs (p < 0.0001) & anxiolytics (p < 0.0001) for anxiety, SSRIs (p = 0.0007) for depression, & non-BZD hypnotics (p < 0.0001) for insomnia. Of the E-Rxs for patients 65 years & older, 78% were Beers List drugs with the most common classes being BZDs, non-BZD hypnotics, & SSRIs. Mid-levels were less likely than physicians to prescribe Beers List drugs to the elderly for insomnia (OR = 0.66, 95% CI: [0.57, 0.76], p < 0.001) & anxiety (OR = 0.41, 95% CI: [0.31, 0.56], p < 0.0001).

**Conclusions:**

In a large dataset of outpatient E-Rxs, when compared to mid-level providers – physicians were found more likely to prescribe BZDs, SSRIs, & non-BZD hypnotics for the treatment of anxiety, depression, & insomnia, respectively, and more likely to prescribe Beers List drugs to elderly patients.

**Impact of preprocedural sodium-glucose cotransporter-2 inhibitor hold time on the incidence of adverse effects**

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Jenna Holzhausen, PharmD, BCPS; Allycia Marie, PharmD

**UAN**: 0048-0000-25-122-L01-P

**Learning objectives**:

1. Discuss the proposed mechanism of adverse effects associated with perioperative SGLT2 inhibitor use
2. Discuss the implications of SGLT2 inhibitor hold duration on perioperative patient management

**Purpose:**

Sodium-glucose cotransporter-2 (SGLT2) inhibitors improve outcomes in patients with type 2 diabetes mellitus, chronic kidney disease, and heart failure but are associated with significant adverse events including euglycemic diabetic ketoacidosis (EDKA). Procedures are thought to be a risk factor due to fasting and metabolic changes that occur during the peri-operative period. Based on pharmacokinetics, the recommended hold time prior to procedures is 72 to 96 hr. The purpose of this study was to compare the incidence of adverse effects in patients who had an SGLT2 inhibitor held for ≥72 hr prior to procedure versus those who did not.

**Methods**:

This retrospective cohort study conducted at a large academic medical center included adult patients who underwent procedures and had received an SGLT2 inhibitor within 2 weeks. Patients with type 1 diabetes mellitus, unknown date of last dose, and those who died during procedure were excluded. Patients were stratified based on preoperative hold times of ≥72 hr or <72 hr. The primary outcome was a composite of adverse events including hyperglycemia, acute kidney injury (AKI), volume depletion, infection, and EDKA within 7 days post-procedure. Secondary outcomes included incidence of individual adverse events from the composite primary endpoint within 7 days, 14 days, and 30 days post-procedure, incidence of heart failure exacerbation within 30 days post-procedure, and incidence of 30-day all-cause mortality.

**Results**:

Among 167 patients included in the analysis, 69 (41.3%) had an SGLT2 inhibitor hold time of ≥72 hr, while 98 (58.7%) had a hold time of <72 hr (mean hold time 105.4 ± 17 hr ≥72-hr vs 43.3 ± 47 hr <72 hr; p=0.0001). The composite outcome of adverse effects within 7 days post-procedure was similar between groups (41.3% ≥72-hr vs. 49.1% <72 hr; p=0.83). During the 0-7 day, 8-14 day, and 15-30 day post-procedure periods, hyperglycemia, AKI, volume depletion, and infection occurred at comparable rates between groups. EDKA rates were similar from 0-7 days (2.9% ≥72-hr vs 1.0% <72 hr; p=0.37), with no additional occurrences from 8-30 days. No differences in heart failure exacerbations (10.1% ≥72-hr vs. 5.1% <72 hr; p=0.21) or all-cause mortality (2.9% ≥72-hr vs. 1% <72 hr; p=0.37) were observed.

**Conclusions**:

There was no significant difference in the incidence of adverse effects between patients whose SGLT2 inhibitors were held ≥72 hr and those held <72 hr prior to procedures. Future prospective studies are needed to refine SGTL2 inhibitor perioperative management.

**Incidence of Breakthrough CMV Infection in High-Risk (CMV D+/R-) Kidney Transplant Patients Requiring CMV Prophylaxis**

Vy Quach, PharmD; Mercedes Strausbaugh, PharmD, BCPS; Jeffrey J. Mikolay Jr, PharmD, BCTXP, BCPS; Basmah W. Khalil, MD

**UAN:** 0048-0000-25-123-L01-P

**Learning objectives**:

1. Define cytomegalovirus (CMV) infection and associated complications.
2. Discuss risk categories of CMV infection in patients with kidney transplant.
3. Review the incidence of breakthrough CMV infection in high-risk patients who received valganciclovir 450 mg daily prophylaxis regimen, CMV recurrent infections at 9 months and 12 months post-transplant, incidence of tissue invasive CMV infections, incident of leukopenia, incident of resistance, and refractory CMV post initial treatment.

**Purpose**:

Cytomegalovirus (CMV), a herpes virus, commonly causes opportunistic infections in kidney transplant patients. The risk of CMV infection depends on serologic status, with CMV seronegative recipients (R-) receiving organs from CMV seropositive donors (D+) at highest risk. The American Society of Transplantation Infectious Diseases Community of Practice recommends preventive measures to reduce CMV incidence in kidney transplant patients. Valganciclovir (VG) 900 mg daily is the guideline-recommended dosage for CMV prevention due to its high bioavailability and effective viral coverage. However, research suggests that valganciclovir 450 mg daily is equally effective, with fewer side effects and lower costs. This study aims to evaluate the incidence of breakthrough CMV infections associated with reduced dose valganciclovir.

**Method**

This retrospective chart review was conducted at the University of Toledo Medical Center, including kidney transplant recipients between October 1, 2022, and July 1, 2024. Patients aged ≥18 years with D+/R- serology status who received valganciclovir 450 mg daily for 6 months post-transplant were included. Exclusion criteria included pregnancy, a history of CMV viremia prior to transplant, multi-organ transplants, or use of other prophylactic treatments besides valganciclovir. The primary endpoint was the incidence of breakthrough CMV infection. Secondary efficacy endpoints included recurrent infections, tissue invasive CMV infections, and safety endpoints such as leukopenia, reduced valganciclovir doses due to renal function, initial CMV infection treatment regimens, and CMV resistance or refractory infections post-treatment.

**Results**:

Out of 195 patients, 92 met the inclusion criteria, and 87 were ultimately included in the study. Breakthrough CMV infection occurred in 7 patients (8%) who received the standard valganciclovir 450 mg daily, while 8 patients (9%) experienced breakthrough infections after dose adjustments due to renal function or leukopenia. Further data analysis is ongoing and will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusion**:

Final conclusions will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Impact of the Pharmacist in Providing Transition of Care Services to Patients with**
**Diabetes at a Community Teaching Hospital**

John Raymond Quinones, PharmD – PGY1 Pharmacy Resident at Trinity Health Oakland

Sabrina Adragna PharmD Candidate, Nadya Al-Hadidi, PharmD, Tana Hannawa, PharmD

**UAN:** 0048-0000-25-124-L04-P

**Learning Objectives:**

1. Analyze existing literature about pharmacist-provided diabetic transition of care services at other institutions
2. Evaluate the impact of pharmacist-provided transition of care services at Trinity Health Oakland

**Purpose:**

Pharmacist-led transition of care (TOC) services can help reduce hospital readmissions by educating patients about their disease and medications before discharge. Neu et al. found that inpatient pharmacist TOC services improve care coordination and continuity as patients transition to outpatient care. Murray et al. reported benefits such as lower readmission rates, HbA1c changes, better follow-up adherence, and increased pharmacist interventions. At an academic medical center, pharmacist-managed diabetes TOC services significantly improved post-discharge HbA1c and follow-up timing. While many institutions offer pharmacist-run TOC programs, Trinity Health Oakland (THO) has a unique outpatient Diabetes Self-Management Education and Support (DSMES) providing both inpatient consults and outpatient education. However, its impact remains unexplored. This study evaluates the benefits of pharmacist-led diabetes TOC services at THO, including patient education and care transition outcomes.

**Methods:**
This retrospective, single-center cohort study will analyze data from diabetes patients at THO who received inpatient TOC diabetes education (TOCDE) between January 1, 2023, and July 1, 2024. Data will be collected from the electronic medical record. The primary endpoint is the change in A1c three to twelve months post-discharge. Secondary outcomes include diabetes-related 30- and 90-day readmission rates, outpatient education participation, and completion of the THO DSMES. A subgroup analysis will compare inpatient TOCDE to a combination of TOCDE and DSMES, focusing on changes in A1c, BMI, and lipid panel three to twelve months post-discharge.

**Results:**

Results will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Comprehensive Review of Insulin Medication Errors: Identifying Trends and Prevention Strategies**

Emily Ralda, PGY1 Pharmacy Resident at St. Rita’s Medical Center, Lima

Amber Walker, PharmD, BCPS; Jeremy Ebert, PharmD, RPh, BCPS, BCCCP;

Eyob Adane, PhD, RPh, BCPS

**UAN:** 0048-0000-25-125-L05-P

**Learning Objectives:**

1. Describe the significance of insulin as a high-alert medication in the inpatient setting
2. Identify trends in medication errors involving insulin and their relationship to patient safety
3. Assess the implications of this study for improving medication error reporting systems and developing tools to better identify patients experiencing hypoglycemic events

**Purpose:**

Insulin is a high alert medication that bears heightened risk of causing significant patient harm and is the primary method of glycemic management in the inpatient setting. According to the Institute of Safe Medication Practices, 11 to 16% of all harmful medication errors have been associated with insulin. The purpose of this study is to identify trends in medication errors involving insulin to enhance safe and effective patient care. This includes analyzing reported medication errors and errors identified through hypoglycemic and automated dispensing system dispense reports of hypoglycemic treatment medications.

**Methods:**

This single-center, retrospective chart review of inpatient medical records intends to identify trends in medication errors involving insulin. Electronic medical records were reviewed from January 1, 2024 to December 31, 2024. Subjects were identified in three ways which include analysis of reported medication errors involving the use of insulin, hypoglycemic monthly reports (patients who had a glucose reading of < 50 mg/dL), and by automated dispensing system dispense reports for glucagon 1mg injection and glucose 16g chewable tablet. Patients were included in the study if they were 18 years of age or older and experienced a hypoglycemic event while receiving insulin inpatient. Exclusion criteria included patients who experienced hypoglycemia due to medications other than insulin and those who presented to the hospital with hypoglycemia. The primary endpoint is to identify insulin medication errors that lead to hypoglycemic events. Secondary outcomes include the severity of cases categorized as a near miss event, precursor safety event, or serious safety event and the percentage of cases found verses reported. Numerical data will be summarized using means and standard deviations if they are normally distributed or as medians and interquartile ranges if they are not. Categorical data will be summarized as counts or percentages.

**Results:**

Final results to be presented, data is currently under analysis.

**Conclusions:**

Final conclusions to be presented at the Ohio Pharmacy Resident Conference.

**PTSD: Paralysis Timing and Sedation Delay**

Lauren Rehm, PGY1 Pharmacy Resident at OhioHealth Doctors Hospital, Columbus

Desta Borland, PharmD; Jeremy Taylor, PharmD, BCPS

**UAN:** 0048-0000-25-126-L01-P

**Learning Objectives:**

1. Review appropriate sequence of and timing of medications given pre- and post-rapid sequence intubation (RSI).
2. Discuss barriers and opportunities for ensuring appropriate sedation for patients who undergo pharmacologic paralysis during RSI.

**Purpose:**

Within the 15- hospital system at OhioHealth, patients have been reported to have received a neuromuscular blocking agent (NMBA) without administration of appropriate sedation prior to or following RSI. This study aims to identify if cases of RSI paralytic administration has occurred without timely and effective sedation pre- and post-procedure, while adding clarity to areas of opportunity for improvement of safe and ethical patient care.

**Methods:**

This retrospective case control study reviewed 667 patients from June 1, 2024, to August 31, 2024, across all OhioHealth facilities utilizing the EPIC EMR. All patients aged 18 years and up who underwent RSI using rocuronium were eligible for inclusion. Exclusion criteria included intubation prior to arrival at an OhioHealth facility, intubation in an OR/procedural area, intubation performed by an anesthesia provider, crash intubations, traumatic injury excluding a patient from RSI, angioedema, sugammadex administration post RSI for NMBA reversal, and patient expiring/cardiac arresting within 1 hour of intubation. Primary outcome was the number of patients given appropriate sedation prior to and after RSI, which includes time of induction agent administration, appropriate dose of induction agent, and sedation started within 10 minutes of induction administration. Secondary outcomes were to evaluate trends in induction timing relative to RSI by analyzing location in which RSI occurred, as well as provider credentialing.

**Results:**

Of the 667 patients who were reviewed, 458 patients were included in the study. Of the studied patients, 95% received sedation prior to administration of a paralytic. When looking at the dosing, 72% of patients were given an appropriate dose of the induction agent used. Only 47% of patients were given post-intubation sedation within 10 minutes of induction administration. In total, 34% of patients included in the study were given appropriate sedation prior to and after RSI, which includes sedation prior to paralytic, appropriate dose of induction agent, and post-intubation sedation within 10 minutes.

**Conclusions:**

Our patient chart review found a larger than predicted number of patients that are inappropriately sedated prior to and following RSI. While the majority of patients received sedation prior to paralytic, the correct dose was only given to 72% of patients. The larger problem was identified as the time to post-intubation sedation, in which only 47% of patients included in the study received post-intubation sedation within 10 minutes. This review brought attention to the large number of patients who are being pharmacologically paralyzed without appropriate sedation.

**Impact of Vancomycin Trough vs AUC-Based Monitoring on Acute Kidney Injury Rates in Patients with Obesity**

Hanna Reker, PharmD, PGY1 Pharmacy Resident at Marion General Hospital, Marion

Erica Wibberley, PharmD; Tricia Sutter, MS, RPh; Jeff Hart, RPh; Arun K. Tewari, PhD; Lori Barber

**UAN:** 0048-0000-25-127-L01-P

**Learning Objectives:**

1. Review guideline recommendations for vancomycin monitoring in patients with obesity
2. Compare outcomes of AUC/MIC vs. trough-based vancomycin monitoring in patients with obesity

**Purpose**:

Intravenous vancomycin is a widely used antibiotic to treat serious methicillin-resistant *Staphylococcus aureus* (MRSA) and other gram-positive infections. However, its use is associated with a risk of acute kidney injury (AKI). Evidence suggests that area under the curve over minimum inhibitory concentration (AUC/MIC) based monitoring may reduce the risk of AKI compared to trough-based monitoring, but there is limited data comparing these methods in patients with obesity. We hypothesize that AUC/MIC monitoring will lead to a lower incidence of AKI in patients with obesity compared to traditional trough-based monitoring.

**Methods**:

This retrospective cohort study was conducted through a chart review across multiple sites within the OhioHealth health system. The primary aim was to compare the incidence of AKI between patients with obesity receiving vancomycin dosed with an AUC/MIC-based versus trough-based approach. Secondary aims included analyzing the median length of hospital stay, time to achieve a therapeutic vancomycin level, time to onset of AKI, and inpatient mortality. The electronic medical record system was used to identify patients with a body mass index ≥ 30 kg/m² who received intravenous vancomycin for more than 24 hours. The study analyzed patients admitted between January 1, 2021 and June 1, 2022, when trough-based monitoring was standard of practice, and between January 1, 2023, and June 1, 2024, when AUC/MIC-based monitoring (InsightRx) was used. Notable exclusion criteria include patients without documented vancomycin levels, those with a trough goal of 10-15 mg/dL, and patients with an initial creatinine clearance less than 30 mL/min.

**Results**:

Final results will be presented at the Ohio Pharmacy Residency Conference.

**Conclusion**:

Final conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Role of an Antimicrobial Stewardship Pharmacy Specialist in Cost Savings and Outcome Improvement**

Connie Rettammel, PharmD – PGY1 Pharmacy Resident at St. Rita’s Medical Center, Lima

Jeremy Ebert, PharmD, BCPS, BCCCP; Krista Shepherd, PharmD, BCPS; Eyob Adane, PhD, RPh, BCPS

**UAN:** 0048-0000-25-128-L01-P

**Learning Objectives:**

1. Compare duration of antimicrobial therapy (days of antimicrobial therapy per 1000 days) between a staffing model with an AMS pharmacist to one without.
2. Determine if an AMS pharmacist position reduces antimicrobial acquisition cost to offset the additional cost associated with staffing the position (assumed to be 60$ an hour or 125,000$ annually) when compared to without having one.
3. Compare the number of pharmacy interventions on antimicrobial therapy between a staffing model with an AMS pharmacist to one without.

**Purpose:**

The Infectious Disease Society of America and American Society of Health System Pharmacists recommend a leadership role in hospital antimicrobial stewardship programs for pharmacists trained in infectious diseases. However, adding such a pharmacist for this role adds cost. The purpose of this study is to evaluate the impact of adding an antimicrobial stewardship pharmacist on antimicrobial expenditure and clinical outcomes at St. Rita’s Medical Center, a 425-bed trauma level 2 hospital, and perform a cost-benefit analysis.

**Methods:**

This single-center, retrospective chart review aims to evaluate the cost savings on antimicrobial acquisition, antimicrobial therapy days per 1000 patient days, and the impact of a dedicated antimicrobial stewardship pharmacist on antimicrobial interventions. Data will be compared to a similar period without an additional antimicrobial stewardship pharmacist. Beginning 8/26/24 an antimicrobial pharmacist staffing model was implemented, with electronic patient charts being analyzed until 12/30/24. This data will be compared to data from the previous year without the model, looking at vancomycin, linezolid, meropenem, piperacillin-tazobactam, micafungin, daptomycin, ciprofloxacin and levofloxacin. These antimicrobials are selected due to their broad-spectrum activity and/or acquisition cost. Patients admitted to St. Rita’s and having an antimicrobial stewardship intervention will be included, while pregnant and pediatric patients will be excluded. The primary endpoint will assess if having an antimicrobial stewardship pharmacist reduces antimicrobial days of therapy per 1000 patient days. The secondary endpoints will be determining if differences are made in antimicrobial acquisition costs, offsetting the cost of staffing the position, and comparing the difference in the number of antimicrobial interventions made.

**Results:** Final results to be presented

**Conclusion:** Final conclusion to be presented

**Evaluating the Safety and Efficacy of Erythropoietin Stimulating Agents in Patients Receiving Microaxial Flow Pump Support**

Savannah Reuss, PharmD, PGY1 Pharmacy Resident at The Christ Hospital; Abigail Rhoades, PharmD, BCCCP; Hilary Raidt, PharmD, BCCCP; Rebecca Dudley, PharmD, BCCP, CACP; Miriam Freundt, MD, FACC

**UAN:** 0048-0000-25-129-L01-P

**Learning Objectives:**

1. Identify patients that may benefit from receiving pre-operative ESA therapy.
2. Describe the effects of ESA therapy on thromboembolic risk in patients getting concomitant Impella® support.

**Purpose:**

Mechanical circulatory support (MCS) can be utilized as a bridge to recovery, orthotopic heart transplant (OHT), or left ventricular assist device (LVAD) in patients with cardiogenic shock. Patients receiving an MCS device, like Impella**®**, often experience anemia due to heart failure and shear blood stress caused by the device. Prior literature demonstrates that pre-operative erythropoietin stimulating agent (ESA) therapy can increase hemoglobin concentration and avoid blood transfusions, but little is known about the safety of concomitant Impella**®** support and ESA therapy. This study aims to determine the impact of ESA therapy on thromboembolic events and transfusion requirements in patients on Impella**®** support.

**Methods:**

This is an institutional review board-approved, retrospective cohort study. Patients were included if they were treated in the cardiovascular intensive care unit (CVICU) and received Impella**®** support with a sodium bicarbonate purge solution. Impella**®** patients that received ESA therapy were compared to those without ESA therapy. Patients within the ESA therapy group were excluded if they received an ESA greater than 30 days prior to Impella**®** insertion.

The primary outcome was thromboembolic events while on Impella**®** support, including venous thromboembolism, ischemic stroke, myocardial infarction, or pump thrombosis. Secondary outcomes included blood transfusion requirements, thromboembolic events at 30 days from last ESA dose, time to thrombosis, bleeding events, and individual components of the primary outcome. Subgroup analyses were conducted on ESA dosing strategy and Impella**®** device used. All outcomes were analyzed using the Chi-square, student t-test, and Fisher’s exact tests, as appropriate.

**Results:**

A total of 142 patients were included: 91 allocated to the non-ESA therapy group, and 51 allocated to the ESA therapy group. The primary outcome occurred in 8 (9%) of the non-ESA group and 7 (14%) of the ESA group (p = 0.40), with most of the thromboembolic events occurring in the upper and lower extremity. Within the ESA group, thromboembolic events 30 days from the last ESA dose occurred in 2 (4%) patients. Post-operative blood transfusion requirements were 4.5 ± 4.05 units and 5.21 ± 4.39 units in the non-ESA and ESA group, respectively (p = 0.28). Time to thrombosis on Impella**®** support occurred at 5.38 ± 4.5 days in the non-ESA group versus 32.43 ± 36.71 days in the ESA group (p = 0.06).

**Conclusions:**

Based on this small retrospective study, there was no difference in thromboembolic events or transfusion requirements between groups, but more studies will be needed to determine the safety and efficacy of ESA therapy in patients on Impella**®** support.

**Analysis of utilization of sodium-glucose cotransporter 2 inhibitors in patients with diabetes and chronic kidney disease among medical residents within a primary care setting**

Sydney Robbins, PharmD – PGY1 Pharmacy Resident at The Ohio State University College of Pharmacy

Jodi Grandominico, MD; Neeraj Tayal, MD; Lauren Kirk, PharmD, BCACP; Cory Coffey, PharmD, MS, BCACP, BCPP

**UAN:** 0048-0000-25-130-L01-P

**Learning Objectives:**

1. Review the literature surrounding the cardiorenal benefits and the underutilization of sodium-glucose cotransporter 2 inhibitors (SGLT2is) in patients with type-II diabetes mellitus (T2DM) and chronic kidney disease (CKD)
2. Describe the prescribing patterns of SGLT2is among patients T2DM and CKD in the primary care setting

**Purpose**:

Recent landmark trials have shown significant cardiorenal protection with SGLT2is. The 2022 KDIGO guidelines now recommend the initiation of SGLT2is in patients with T2DM and CKD with an eGFR ≥ 20 mL/min/1.73m2. Despite updated recommendations, the uptake of SGLT2is in eligible patients is suboptimal. This study aims to evaluate the proportion of patients with T2DM and CKD receiving a SGTL2i. Secondary endpoints include the proportion of patients with T2DM and CKD (1) never prescribed an SGTL2i, (2) previously prescribed an SGLT2i but not currently on therapy, and (3) not currently on SGTL2i therapy but may qualify for initiation based on current clinical practice guidelines.

**Methods**:

This study utilizes a third party, HIPAA protected, data analytics tool to identify patients with CKD and T2DM at two primary care clinics comprised of >100 medical residents. Previously, a resident physician used the platform to identify patients with G3a/G3b CKD, defined as an eGFR of 30-60 mL/min/1.73m2. Patients empaneled to the resident physician between 7/1/2023 and 10/31/2023 were included. This newly diagnosed population was then cross-referenced for concomitant T2DM diagnoses. Patients were excluded for the following criteria: undergoing dialysis, history of kidney transplant, established with nephrology or endocrinology (defined as a visit within the last 12 months), >12 months since last primary care provider visit, or if most recent eGFR is not indicative of G3a/G3b CKD.

**Results**:

A total of 240 patients were identified in the initial report. 169/240 (70.4%) were excluded based on criteria. After exclusions, 71/240 (29.6%) patients were included for analysis of primary and secondary endpoints. Among these, 27/71 (38%) were currently prescribed a SGLT2i while 44/71 (62%) were identified as potential candidates for therapy initiation. Of the 44 patients who could have benefited from SGLT2i initiation, 40/44 (90.9%) had never been prescribed an SGLT2i and 4/44 (9.1%) had previously been on a SGLT2i but discontinued therapy for various reasons.

**Conclusion:**

Endocrinologists and nephrologists were 1.4 times more likely to initiate SGLT2is in patients with G3a/G3b CKD and T2DM than primary care trainees**.** This report highlights the underutilization of SGLT2is in eligible patients, despite updated standard of care recommendations. Pharmacists embedded in primary care clinics can assist physicians in applying the latest recommendations for disease state management, contributing to population health initiatives.

**Defining the Optimal Duration of Post-Operative Antibiotics for Complicated Cholecystitis After Source Control**

Dymond M. Robinson, PharmD - PGY1 Pharmacy Resident at UC Health - West Chester Hospital Department of Pharmacy

Tara L. Harpenau, PharmD, BCIDP; Isabelle G. Oiler, PharmD; Christopher R. Marsman, PharmD, BCPS

**UAN:** 0048-0000-25-131-L01-P

**Learning Objectives:**

1. Discuss evidence examining antimicrobial duration after source control of cholecystitis
2. Determine gaps in literature with establishing the optimal duration of antimicrobial therapy after source control for complicated cholecystitis

**Purpose:**

Treatment of complicated cholecystitis typically includes source control via cholecystectomy or cholecystostomy followed by antimicrobial therapy. Complicated cholecystitis cases typically require a longer duration of therapy after source control, but the optimal duration of therapy is unknown as these patients are not well represented in the available literature. The purpose of this study is to compare outcomes of complicated cholecystitis with a short duration versus a long duration of antimicrobial therapy following cholecystectomy or cholecystostomy tube placement.

**Methods:**

This retrospective cohort study approved by the Institutional Review Board included patients ≥ 18 years old with complicated cholecystitis and cholecystectomy or cholecystostomy. The short duration group included antimicrobial duration for < 5 days, and the long duration included antimicrobial therapy for ≥ 5 days after source control. The primary outcome was a composite outcome of surgical site infection, recurrent gallbladder associated infection, or death within 30 days of source control. Secondary outcomes included death within 90 days of source control, rehospitalization or ER visit due to surgical complications within 30 days of source control, and development of *C. difficile* within 90 days of source control. A post-hoc analysis was performed to examine outcomes in patients who underwent cholecystectomy versus cholecystostomy as the source control procedure.

**Results:**

A total of 1,233 patients were screened for eligibility with 11 patients included in the short duration group and 63 patients in the long duration group. The primary outcome occurred in 0 (0%) of the short duration group and 7 (11.1%) of the long duration group (p = 0.59). There was no statistically significant difference between the groups for outcomes. Patients with a cholecystostomy had a median antibiotic duration of 7 days compared to a median duration of 5 days for patients with a cholecystectomy (p <0.001). In addition, 4 (11.4%) patients with a cholecystostomy experienced rehospitalization or emergency department visit due to surgical complications compared to 0 (0%) patients with a cholecystectomy (p = 0.049).

**Conclusions:**

This study found no difference in adverse outcomes related to complicated cholecystitis when utilizing a short duration of antimicrobial therapy compared to a long duration of antimicrobial therapy, but is limited in the imbalanced size of the treatment groups. Future research should focus on outcomes specifically related to the method of source control for cholecystitis.

**Pharmacist-led interventions in antiarrhythmic therapy: Results from a new clinic initiative**

Tatum Robinson, PharmD – PGY1 Pharmacy Resident at Mary Rutan Hospital

Karen Kier, PhD, MSc, RPh, BCPS, BCACP, CTTS, FASHP, FCCP; Jessi Hines, PharmD, RPh, BCACP

**UAN:** 0048-0000-25-132-L01-P

**Learning Objectives:**

1. Identify the key antiarrhythmic medications monitored in pharmacist-led appointments and the specific laboratory and diagnostic tests required for each.
2. Describe the pharmacist’s role in monitoring antiarrhythmic therapy, including intervention strategies to mitigate adverse effects and improve patient outcomes.
3. Discuss the potential impact of pharmacist-led antiarrhythmic medication monitoring on patient safety and satisfaction.

**Purpose:**

Antiarrhythmics are routinely used for inpatient and outpatient management of cardiac dysrhythmias. While providing vast benefits, many have the potential for significant adverse effects. Pharmacist-led monitoring and intervention can play a key role in early identification and prompt modification of medication regimens. The purpose of this study is to assess if pharmacist-led antiarrhythmic medication monitoring appointments focused on the management of amiodarone, flecainide, propafenone, sotalol, and dofetilide decrease occurrence of adverse events and improve patient satisfaction.

**Methods:**

The pharmacist will work under a Collaborative Practice Agreement outlining patient referral and management of antiarrhythmic therapy. Patients will be identified by cardiologists in the Heart and Vascular clinic due to their antiarrhythmic medication use and interest in pharmacist-led medication management. Once care has been established with the pharmacist, monitoring will be performed based on established protocols. Amiodarone will be monitored with a baseline pulmonary function test, chest x-ray, thyroxine (T4), thyroid stimulating hormone (TSH), comprehensive metabolic panel (CMP) specifically looking at alanine aminotransferase (ALT) and aspartate aminotransferase (AST), and electrocardiogram (ECG). Following baseline evaluation, T4, TSH, ALT and AST through a CMP will be taken every 6 months as well as a chest x-ray every 12 months. Both flecainide and propafenone will require a baseline and every 6 month monitoring of CMP and ECG. Drug interactions will be monitored for all patients being seen at these appointments, but due to their wide drug interaction profile, sotalol and dofetilide will be carefully evaluated for drug interactions in addition to a basic metabolic panel and ECG at baseline and every 6 months. This study will focus on evaluating the number of patients seen and the interventions initiated by pharmacists. Descriptive statistics will be used to evaluate the data.

**Results:**

To be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the Ohio Pharmacy Resident Conference.

**Comparison of Insulin NPH and Glargine for Transitioning from Continuous Insulin Infusion Post-Cardiac Surgery**

Hunter Roth, PharmD – PGY1 Pharmacy Resident at ProMedica Toledo Hospital/ProMedica Russell J. Ebeid Children’s Hospital

Kevin Wohlfarth PharmD, BCPS, BCCCP, BCCP; Chrysten Eberhard, PharmD, BCPS; Natalie Tuttle, PharmD, BCPS, DPLA

**UAN:** 0048-0000-25-133-L01-P

**Learning Objectives:**

1. Review the use of insulin following cardiac surgery to prevent post-operative complications.
2. Compare the use of insulin NPH and glargine following cardiac surgery for transitioning patients from continuous intravenous to subcutaneous insulin.

**Purpose:**

Stress-induced hyperglycemia frequently occurs in patients following cardiac surgery and is associated with numerous postoperative complications such as deep sternal wound infection, increased length of stay, and mortality. Many patients undergoing cardiac surgery receive continuous intravenous insulin to achieve glycemic control peri-operatively. Early transition from continuous intravenous to subcutaneous insulin is advantageous as it may reduce nursing workload and decrease costs. The purpose of this study was to determine whether insulin neutral protamine Hagedorn (NPH) or glargine would achieve better post-operative blood glucose control following the discontinuation of a continuous intravenous insulin.

**Methods:**

This study was a single-center, retrospective cohort including patients 18 years of age or older who had undergone cardiac surgery. Patients received an intravenous insulin infusion of 2 hours or more followed by at least one dose of either insulin NPH or glargine within 24 hours after surgery. The primary endpoint was the blood glucose concentration (mg/dL) 24 hours after cardiac surgery. Secondary endpoints included the percentage of patients with a blood glucose concentration of 180 mg/dL or less at 24 hours after surgery, blood glucose concentrations at 2, 6, 12, and 24 hours following the end of the intravenous insulin infusion, and the incidence of hypoglycemia.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference 2025.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference 2025.

**Effect of Implementation of a New Insulin Infusion Protocol for Patients with Diabetic Ketoacidosis** Hanna Rowell, PharmD – PGY1 Pharmacy Resident at the University of Toledo Medical Center

Kellie Shiekh, PharmD, BCPS, BCCCP; Brian Hinch, MD, FACP; Ryan Strausbaugh, PharmD, BCPS

**UAN:** 0048-0000-25-134-L01-P

**Learning Objectives:**

1. Review guideline-based recommendations for the management of diabetic ketoacidosis.
2. Discuss the impact of implementing a new insulin infusion protocol for DKA management.

**Purpose:**

The 2009 American Diabetes Association guidelines recommend continuous intravenous insulin infusions using a low-dose protocol as the standard of care for managing diabetic ketoacidosis (DKA). In recent years, many institutions have adopted nurse-driven insulin infusion titration algorithms in an effort to reduce the time to DKA resolution, length of stay, and risk of hypoglycemia.

Previously, the University of Toledo Medical Center (UTMC) utilized a unified, columnar insulin infusion titration algorithm which targeted a glucose of 110-150mg/dL for both glucose management and hyperglycemic crisis treatment. In February 2024, UTMC transitioned to a new insulin infusion protocol specifically for the treatment of DKA, which targets a glucose of 150-200mg/dL. The new algorithm features an integrated calculator within the electronic medical record to determine insulin infusion titrations based on an hourly rate of change in blood glucose. This study aims to assess the safety and efficacy of the newly implemented protocol compared to the previous approach in the management of DKA.

**Methods:**

This study was an IRB-approved retrospective, pre-post observational chart review that included patients admitted to the University of Toledo Medical Center between April 1st, 2023, and December 1st, 2024, who received an insulin infusion for the treatment of diabetic ketoacidosis. The primary objective was to compare the incidence of hypoglycemia associated with the insulin infusion between the previously established and recently implemented protocols. Secondary endpoints included time to anion gap closure and plasma glucose <200mg/dL, duration of insulin infusion, and in-hospital and ICU length of stay.

**Results:**

A total of 75 patient encounters were included in the study. Among the 37 encounters managed with the previous insulin infusion protocol, one case (2.7%) resulted in a hypoglycemic event. In comparison, two hypoglycemic events (5.3%) occurred among the 38 encounters managed with the newly implemented DKA-specific protocol. However, the difference in hypoglycemia incidence between the two protocols was not statistically significant (Fisher’s exact test, *p* = 1.000). Secondary outcomes and additional analyses will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Conclusions:**

Final results and conclusions will be presented at the 2025 Ohio Pharmacy Residency Conference.

**Assessing the Impact of Clinical Pharmacist Interventions on Readmission Rates in a Stepdown Care Setting**

Jada Rowland, PharmD – PGY1 Pharmacy Resident at Mercy Health St. Rita’s Medical Center

Eyob Adane, Ph.D, RPh, BCPS; Rachel Kahle, PharmD, BCPS; Laura Schulz, RPh, BCPS

**UAN:** 0048-0000-25-135-L04-P

**Learning Objectives:**

1. Evaluate the impact of clinical pharmacist interventions on 30-day hospital readmission rates.
2. Discuss study findings and examine how these findings can be extended into clinical pharmacist’s future work.

**Purpose:**

The purpose of this study was to compare readmission rates in patients with a readmission score ≥ 20% admitted to an inpatient step-down care unit who received clinical pharmacist interventions versus those who received no clinical pharmacist interventions. The primary objective of this study was to evaluate 30-day hospital readmission rates following clinical pharmacist intervention.

**Methods:**

This study was given exempt status by the IRB of the institution where the study was conducted. This prospective interventional study and retrospective chart review aimed to analyze 30-day hospital readmission rates. Clinical pharmacist interventions included admission medication reconciliation, discharge medication reconciliation, discharge counseling, and inpatient counseling. Pharmacist interventions were made on patients admitted to an inpatient stepdown care unit with a readmission risk score ≥ 20% between October 2024 and December 2024 and were compared to patients with similar readmission risk scores admitted to a stepdown care unit between December 2023 and March 2024. Patients were included in the study if they were ≥ 18 years old, were admitted directly to a stepdown care unit, had a readmission risk score ≥ 20%, and had received at least one clinical pharmacist intervention if they were in the prospective group or none if they were in the retrospective group. Exclusion criteria included patients transferred to stepdown care unit from intensive care unit and readmission risk score < 20%. The primary outcome was 30-day hospital readmissions. The secondary outcomes were 60-day hospital readmissions, ER visits, and patient satisfaction scores. 220 patients per group were needed to detect a 10% difference, with a power of 80%, and a 0.05 level of significance.

**Results:**

A total of 219 patients were included in the study, 130 in the retrospective group and 89 in the prospective group. The rate of 30-day readmission was 42.3% in the retrospective group compared to 21.3% in the prospective group (p = 0.002). The rate of 60-day readmission was 59.2% in the retrospective group compared to 43.8% in the prospective group (p = 0.035).

**Conclusions:**

Patients with a readmission risk score ≥ 20% admitted to an inpatient stepdown care unit who received at least one form of clinical pharmacist intervention had significantly lower 30- and 60-day hospital readmission rates without a significant change in emergency department visits.

**Retrospective Cohort Study of Beta-Lactam plus Doxycycline versus Beta-Lactam plus Azithromycin for the Treatment of Inpatient Community-Acquired Pneumonia**

Shannon Saelinger, PharmD, PGY1 Pharmacy Resident at The Christ Hospital, Cincinnati, OH

Angela Haskell, PharmD, BCPS, BCIDP; Hannah Adams, PharmD, BCCCP; Natalie Delozier, PharmD; Kathleen Wilson, PharmD

**UAN:** 0048-0000-25-136-L01-P

**Learning Objectives:**

1. Summarize the current evidence on the use of doxycycline for atypical coverage in CAP
2. Identify gaps in the current literature that led to the development of this retrospective study
3. Apply the results of this retrospective study to your individual practice site

**Purpose:**

Guidelines for non-severe inpatient community-acquired pneumonia (CAP) recommend a beta-lactam plus macrolide or respiratory fluoroquinolone monotherapy in patients without risk factors for resistant organisms. Beta-lactam plus doxycycline is an alternative regimen for patients with allergies or contraindications to macrolides or fluoroquinolones. Due to resistance and safety concerns with first-line agents, there is need for evidence to support doxycycline. Small, retrospective studies have shown no difference in outcomes when comparing doxycycline to azithromycin for non-severe CAP. However, data for severe CAP is lacking. This study aims to determine if beta-lactam plus doxycycline is an effective regimen for severe and non-severe CAP.

**Methods:**

This is an IRB approved, retrospective cohort study evaluating adult inpatients with a diagnosis of CAP treated with a beta-lactam plus azithromycin or beta-lactam plus doxycycline for at least 72 hours between September 2022 and September 2024. Patients will be included if they received a guideline recommended beta-lactam and had antibiotic treatment initiated within 24 hours of diagnosis. Patients will be excluded if they have a diagnosis of Covid-19, influenza, or malignancy, are receiving immunosuppression, are pregnant, or are receiving chronic azithromycin therapy prior to admission.

The primary outcome is therapy failure during admission, defined as the persistence of symptoms related to CAP requiring an escalation of antibiotic therapy, an increase in level of care including initiation of BiPAP, admission to the ICU for mechanical ventilation or hemodynamic instability due to worsening CAP, or death presumed to be due to CAP. Secondary outcomes include hospital length of stay, time to clinical stability, and 30-day hospital readmission for a respiratory condition. Data will be analyzed using unpaired t-test and Chi-square or Fisher’s exact test where appropriate.

**Results:**

Of the 299 patients assessed for eligibility, 170 patients (85 in each group) met inclusion criteria. There were no differences in baseline characteristics except a higher rate of coronary artery disease in the doxycycline group vs. the azithromycin group (44.7% vs 28.2%, p = 0.03). There was no difference in incidence of therapy failure between the azithromycin vs doxycycline groups (24.7% vs 14.1%, p = 0.08).

**Conclusions:**

Doxycycline showed similar rates of clinical failure compared to azithromycin. Doxycycline may be an appropriate agent to cover atypical pathogens for CAP especially in patients with prolonged QTC or increased risk for *C. diff*.

**Impact of a pharmacist-led student reproductive health & wellness clinic utilizing an over-the-counter progestin-only pill**

Lena Salameh, PharmD - PGY1 Pharmacy Resident at ONU HealthWise, Ada, OH

Karen L. Kier, PhD, MSc, BCPS, BCACP, CTTS, FASHP, FCCP; Michael J. Rush PharmD, MBA, BCACP, CDE/CDCES, NCTTP; Alaina Kortokrax, PharmD.

**UAN:** 0048-0000-25-137-L01-P

**Learning Objectives:**

1. Review the Centers for Disease Control and Prevention (CDC) guidelines for the 2024 US Medical Eligibility Criteria for Contraceptive Use (US MEC) for the proper initiation of contraception.
2. Discuss what inclusive reproductive pharmacy products and services can be offered to students in a community pharmacy.
3. Summarize the benefits of a pharmacist-led clinic designed to educate and advocate the reproductive health of female students.

**Purpose:**

A notable gap in reproductive health services exists, especially in university settings, where access to contraception and education is limited. At a private university, recent changes to health center policies and the closure of local pharmacies have created additional barriers for students seeking contraceptive services. This study proposes a pharmacist-led reproductive health and wellness clinic that aims to improve access to reproductive health services, promote safe sexual practices, and provide students with confidential space for personalized care.

**Methods:**

Participants will be identified through self-referral and their current enrollment status at the university. At the initial visit, participants will sign a consent form, complete surveys on health and sexual history, and undergo a mandatory blood pressure check. Relevant lab results will be reviewed, and personalized goals will be set. Eligible participants may receive a 28-day supply of over-the-counter (OTC) progestin-only pills (POP), with eligibility determined based on the U.S. MEC Guidelines. Education on proper medication use and lifestyle modifications will be provided, and follow-up visits will be scheduled at 28 days and 3 months to assess adherence, side effects, and any health concerns. The primary outcome will focus on the percentage of students who adhere to follow-up with the pharmacist. Secondary outcomes will include the number of participants who utilized clinic services, adherence to the pharmacist-recommended protocol, and patient satisfaction, which will be evaluated through pre- and post-surveys.

**Results:**

Full results will be presented at the Ohio Pharmacy Resident Conference with presentation.

**Conclusion:**

The conclusion will be presented at the Ohio Pharmacy Resident Conference with presentation.

**Evaluation of Early Oral Step-Down Therapy in *Staphylococcus aureus* Bacteremia**

Cheyenne Santos, PharmD – PGY1 Pharmacy Resident at the University of Toledo Medical Center

Christina Tran, PharmD; Mary Cait Smith, PharmD, BCPS

**UAN:** 0048-0000-25-138-L01-P

**Learning Objectives:**

1. Evaluate the efficacy of early oral step-down therapy in *S. aureus* bacteremia
2. Develop a treatment regimen of when it may be appropriate to switch to oral therapy

**Purpose:**

Recent literature suggests that transitioning to oral therapy in *Staphylococcus aureus bacteremia* after several days of IV treatment can offer significant benefits, such as reducing infusion-related adverse effects, shortening hospital stays, lowering healthcare costs, and supporting antimicrobial stewardship. The purpose of this study is to determine the role of oral step-down therapy in antimicrobial stewardship and quality care improvement.

**Methods:**

This is a retrospective study focusing on adult patients diagnosed with Staphylococcus aureus bacteremia who were admitted to the University of Toledo Medical Center between October 1, 2022, and November 4, 2024, and transitioned to oral therapy with sulfamethoxazole/trimethoprim, linezolid, or cephalexin. Patients were excluded if they lacked adequate source control, had endocarditis, recurrent bacteremia within three months of admission, and the presence of prosthetic heart valves, deep-seated vascular grafts, or any other infected devices without source control. The primary objective is to evaluate the proportion of patients experiencing complications related to S. aureus bacteremia which was defined as relapsing *S. aureus* bacteremia, deep-seated infection with *S. aureus* or death attributed to *S. aureus* bacteremia within 90 days of initiating oral therapy. Secondary objectives include assessing hospital length of stay, duration of intravenous therapy prior to transitioning to oral treatment, incidence of drug-related adverse events, and comparing outcomes between high-risk and low-risk patient groups with S. aureus bacteremia.

**Results:**

Fourteen patients were eligible for the inclusion criteria of this study. Only one patient experienced complications related to S. aureus bacteremia within 90 days of admission. Of the eligible patients, 78% were stepped down to oral linezolid and 22% were stepped down to oral cephalexin. The median hospital length of stay was 8 days (2-22 days). None of the patients experience drug-related adverse events while on oral therapy.

**Conclusions:**

Final conclusions will be presented at the Ohio Pharmacy Residency Conference

**An Analysis of Pharmacist-Led Interventions in Inpatient Psychiatric Patients**

Isabelle Senoyuit, PharmD, PGY1 Pharmacy Resident Southwest General Health Center

Jennifer Remington, PharmD, BCCP

**UAN:** 0048-0000-25-139-L01-P

**Learning Objectives:**

1. Discuss the impact of pharmacist coverage gaps utilizing pharmacist led interventions on an inpatient psychiatric unit
2. Describe the importance of appropriate diabetes management in psychiatric patients

**Purpose:**

Diabetes mellitus is a prevalent comorbidity among individuals with psychiatric conditions. While pharmacists play a significant role in diabetes management for the public, their participation in caring for diabetic psychiatric patients is less established. At Oakview Behavioral Health, an inpatient psychiatry unit within Southwest General Hospital, an attending psychiatric physician and a consulting general practice physician will evaluate the patient to assess their other comorbidities, including diabetes. The purpose of this study is to determine the impact of pharmacist lead interventions in diabetic care compared with the standard of care with no pharmacy intervention.

**Methods:**

A retrospective chart review was completed looking at patients admitted to Oakview Behavioral Health between January 1st 2024 and August 30th 2024. Patients were included in the study if they were 18 years of age or older and had an A1C of > 5.7%. No exclusion criteria were identified during chart review. A pharmacist intervention was confirmed if there was a documented clinical intervention by a pharmacist in the patient's electronic medical record anytime during the admission. The primary outcome of the retrospective chart review was to determine areas of unmet diabetes needs and identify opportunities for pharmacy involvement. The secondary outcome is to compare interventions made to diabetic medication with no pharmacist patient review compared to daily review.

**Results:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusion:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Optimizing Transitions of Care: The Impact of Pharmacist-Led Interventions on Readmission Rates and Patient Outcomes**

Breanna Smith, PharmD – PGY2 Pharmacy Resident at Mercy Health St. Rita’s Medical Center, Lima, OH

Staci Dotson, PharmD, BCACP, BC-ADM; Debra Parker, PharmD, BCPS;
 Lisa Block, PharmD, BCPS, CTTS

**UAN:** 0048-0000-25-140-L04-P

**Learning Objectives:**

1. Define the pharmacist’s role in transitions of care and assess the influence on patient outcomes
2. Analyze the effectiveness of a pharmacist-led hospital readmission reduction program

**Purpose:**

Hospital readmissions remain a significant public health concern and economic burden despite numerous strategies aimed at reducing rates. At Bon Secours Mercy Health (BSMH) St. Rita’s Medical Center (STR), heart failure (HF), chronic obstructive pulmonary disease (COPD), pneumonia, and sepsis are the leading causes of readmission. Within the BSMH system, STR recognizes that these readmissions present a multi-faceted challenge. Given the financial and clinical implications, it is crucial to implement effective interventions to mitigate healthcare costs. This study aims to assess the impact of a pharmacist-led intervention programin reducing hospital readmissions.

**Methods:**

This will be a single center, prospective chart review of patients from STR Family Medicine offices with high admission risk scores. Patients will be identified using a cognitive computing model built within Epic. Patients will be included if they have a hospital discharge with a ≥ 60% probability of readmission. Once participants are enrolled, a pharmacist will conduct an interview with each patient. During each encounter, the pharmacist will participate in medication reconciliation, comprehensive counseling, and address patient concerns regarding therapy. Additionally, the pharmacist will contact the patient’s care team to provide medication recommendations. The primary endpoint will assess 30-day readmission rates at two interventional family medicine practices compared to one controlled family medicine practice. The secondary endpoints include percent change in 30-day readmission rates of HF, COPD, pneumonia, and sepsis from the same three-month period one year prior and 30-day emergency department visits post-intervention. Additional secondary endpoints include the number and types of interventions recommended and accepted, the percent of in-person versus telephone visits, and total pharmacist time spent per patient chart review. This study will take place from November 2024 to February 2025.

**Results:**

Results will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Evaluating a Novel Order Set for Alcohol Withdrawal Syndrome:** **a Before-and-after Study on Clinical Outcomes**

Colin H. Smith, PharmD - PGY1 Pharmacy Resident at Miami Valley Hospital, Dayton, Ohio

Neal S. Fox, PharmD, BCPS, BCCCP; Seth J. Pemberton, PharmD, MBA

**UAN:** 0048-0000-25-141-L01-P

**Learning Objectives:**

1. Describe current inpatient alcohol withdrawal syndrome management practices
2. Discuss the impact of a novel alcohol withdrawal syndrome order set on clinical outcomes

**Purpose:**

The 2020 American Society of Addiction Medicine (ASAM) guidelines on the treatment of alcohol withdrawal syndrome (AWS) provide several medication, dosing, and monitoring recommendations. A front-loading with symptom-triggered dosing strategy as opposed to a symptom-triggered dosing strategy alone includes more aggressive doses of AWS agents early rather than waiting for clinical symptoms to drive therapy. Additionally, phenobarbital has been suggested as an alternative to traditional benzodiazepine therapy due to its long half-life, dual action on gamma-aminobutyric acid and glutamate signaling, and risk of benzodiazepine failure. This study aimed to compare outcomes between a novel order set utilizing recommendations from the 2020 ASAM guidelines and a previous AWS order set.

**Methods:**

This retrospective, cohort study included adult inpatients receiving an AWS order set from January 1, 2023, to August 31, 2024. The novel order set incorporates Richmond Agitation-Sedation Scale (RASS) score monitoring as an alternative to Clinical Institute Withdrawal Assessment (CIWA-Ar) monitoring, includes chlordiazepoxide for low/moderate risk and phenobarbital for moderate/high risk, and utilizes a front-loading dosing method in moderate/high risk patients based on Prediction of Alcohol Withdrawal Severity Scale (PAWSS). The primary outcome was time to clinical stabilization in hours defined as CIWA-Ar≤10 or RASS≤0 for a 24-hour time period beginning within five days of order set initiation, and was compared with the Mann-Whitney U statistical test. Secondary outcomes, including length of stay, inpatient mortality, duration of therapy, escalation of care, and agent(s) utilized were assessed utilizing Mann-Whitney U or Chi Squared statistical methods as indicated. Utilizing existing literature for length of stay, a target sample size of 154 patients, with 77 patients in each group, was calculated to detect a 30% decrease in time to clinical stabilization.

**Results:**

Of the 245 patients reviewed, a total of 150 patients were included with 75 patients in each group. The median time to clinical stabilization was significantly less in the treatment group compared to the control group [P=0.013, 24 (24-43)]. Of patients treated with lorazepam, there were significantly less doses given among novel order set treated patients compared to previous order set treated patients [P=0.019, 4.25 (2-9.5)]. There was no statistically significant change in secondary outcomes. Collected baseline characteristics were similar between the two groups.

**Conclusions:**

The initiation of a novel AWS order set resulted in decreased time to clinical stabilization compared to an older AWS order set in adult inpatients. Further studies are warranted to evaluate clinical outcomes within the novel order set.

**Standardization of Blood Factor Products: Enhancing Pharmacist Knowledge and Understanding**

Winter Stadtlander, Pharm.D. - PGY1 Pharmacy Resident, St. Elizabeth Healthcare, KY

 Deanna Fliehman, Pharm.D., BCPS, Sarah Gillian, Pharm. D. , BCPS,

Kristina Hesse, Pharm.D.; BCOP, BCPS; Julie Spanyer, Pharm.D.

**UAN:** 0048-0000-25-142-L01-P

**Learning Objectives:**

1. Define the concept and purpose of blood factor stewardship in clinical practice.
2. Discuss the impact of blood product standardization and comprehensive educational resources on pharmacists' knowledge through pre- and post-education assessments.

**Purpose:**

Blood factor stewardship focuses on coordinated, efficient strategies to improve health outcomes, reduce adverse drug events, and prevent unnecessary costs in managing hemostatic and antithrombotic conditions. Establishing evidence-based guidelines for prescribing, reviewing orders, and administering blood factors is critical for proper use. This project assessed the impact of blood product standardization and a comprehensive educational resource on pharmacists' knowledge through pre- and post-education assessments. Additionally, the project evaluated preferred blood products in each clotting factor class by analyzing usage, dosing, and potential cost savings.

**Methods:**

This retrospective study was approved by the Institutional Review Board (IRB). Data was extracted from the electronic medical record for patients treated with blood factors at St. Elizabeth Healthcare, including both inpatient and outpatient infusion centers over a three-year period. Eligible patients included those aged 18 years or older who received blood factor therapy. For patients receiving blood factors, the following data was collected: baseline demographics, specialty of the ordering provider, blood factor ordered, reason for administration (planned procedure vs. emergency), time of initiation, indication for use (blood disorder or anticoagulation reversal), dose administered, dose appropriateness, baseline hemoglobin levels, and timing of laboratory tests for subsequent dosing. In addition, a pre- and post-survey will be administered to pharmacists (both inpatient and outpatient) across the sites. Survey data collected will include practice setting, years of experience, residency training, board certification status, and responses to survey questions regarding their knowledge and practices.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusion:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Evaluation of the Safety and Effectiveness of Phenobarbital for Alcohol Withdrawal Syndrome at a Community Hospital**

Samantha Szoradi, PharmD - PGY1 Pharmacy Resident, UH Ahuja Medical Center, Beachwood

Jodie Fink, PharmD, BCPS; Aaron Barber, PharmD, BCPS

**UAN:** 0048-0000-25-143-L05-P

**Learning Objectives:**

1. Describe the use of phenobarbital for alcohol withdrawal syndrome
2. Evaluate the results of a drug use evaluation on phenobarbital at a community hospital

**Purpose:**

University Hospitals Ahuja Medical Center (UHAMC) recently updated the treatment guideline for management of alcohol withdrawal syndrome (AWS) to expand the use of phenobarbital outside of the ED and ICU. The guideline provides recommendations on the loading dose of phenobarbital based on the patient’s location within the hospital along with subsequent dosing recommendations based on withdrawal risk severity. Guidance regarding tapered regimens, as needed orders, and additional monitoring parameters are outlined in the guideline. The UH system is currently working on adopting this new guideline and updating the electronic medical record (EMR) to incorporate updated order sets. This study aims to evaluate the safety and effectiveness of phenobarbital for the management of alcohol withdrawal syndrome following the update to the guideline at UHAMC.

**Methods:**

This study is a single-center, retrospective chart review of hospitalized patients treated with phenobarbital for alcohol withdrawal syndrome at UHAMC between September 1st, 2024 to November 30th, 2024. All admitted patients between the ages of 18 and 89 who received at least one dose of phenobarbital for alcohol withdrawal syndrome will be evaluated for inclusion. Patients receiving outpatient barbiturate therapy or scheduled alternative therapy for alcohol withdrawal syndrome will be excluded. The primary endpoints of this study are the percentage of patients transferred to the ICU due to requiring intubation while receiving phenobarbital and the percentage of patients transferred to the ICU from floor due to uncontrolled alcohol withdrawal symptoms while receiving phenobarbital. The secondary endpoints of this study are the percent of patients requiring adjunct medications in addition to phenobarbital for alcohol withdrawal syndrome and the number of phenobarbital doses held on the floor due to sedation or RASS scores ≤-1.

**Results:**

Final results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Implementation and Analysis of Oral Ketamine Mouthwash for**

**Cancer-associated Mucositis in a Community Inpatient Setting**

Sana N. Tahbazof, PharmD –PGY1 Pharmacy Resident at St. Elizabeth Healthcare, KY

Colin Sinclair, PharmD, BCPS; Ana Blewett, PharmD, BCOP; Michelle Gross, PharmD, BCPS; Stephanie Herro, NP; Stephanie DeCarlo, RN; Shannon Buring, RN; Rajeev Kurapati, MD

**UAN:** 0048-0000-25-144-L01-P

**Learning Objectives:**

1. Explain the impact of oral ketamine mouthwash on patient-reported outcomes in oncology patients with mucositis.
2. Compare the effectiveness of oral ketamine mouthwash to standard mucositis treatments in relation to opioid requirements and length of hospitalization.

**Purpose:**

This study aims to evaluate the efficacy and safety of oral ketamine mouthwash for management of mucositis in hospitalized oncology patients. The primary objective is to assess changes in patient-reported pain scores at rest and while swallowing from baseline to the end of the treatment period. Secondary objectives include evaluating opioid requirement, oral intake, sleep quality, and length of hospitalization. Safety endpoints will assess adverse events and treatment discontinuations.

**Methods:**

This pre-post retrospective study was conducted in the inpatient oncology unit at St. Elizabeth Healthcare Edgewood from December 1, 2024 to April 1, 2025. Adult patients,18 years or older, undergoing chemotherapy, radiation therapy, or both, with oral mucositis (WHO grade 1 or greater) are included. Exclusion criteria include ketamine hypersensitivity, pregnancy, severe psychiatric disorders, severe hepatic impairment, and recent participation in conflicting clinical trials. The intervention consists of oral ketamine mouthwash (2.5 mg/mL) administered up to four times daily, with additional as needed doses based on mucositis severity. The solution was administered either swish and spit (25 mg) or swish and swallow (10 mg). The following data points were collected: patient demographics, cancer diagnosis, frequency of medication administration, pain scores (0-10 numeric rating scale), oral intake, oral morphine equivalent, sleep quality, and adverse events. Baseline data from January 1, 2023, to August 31, 2024, was used for comparison, focusing primarily on patients with head and neck cancer who received standard mucositis treatments during admission. Appropriate statistical tests were used to analyze both continuous and categorical variables.

**Results:**

Results will be presented at the Ohio Pharmacy Resident Conference.

**Conclusions:**

Conclusions will be presented at the Ohio Pharmacy Resident Conference.

**Real-World Clinical and Economic Outcomes Associated with Neuromuscular Blockers, Associated Reversal Agents, and Provider Awareness**

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**UAN:** 0048-0000-25-145-L01-P

**Learning Objectives:**

1. Recall pharmaceutical agents used for the reversal of neuromuscular blockers.
2. Identify differences in anesthesia providers clinical usage of neuromuscular blockers and reversal agents.
3. Discuss the significance of varying provider practices on clinical and economic outcomes.

**Purpose:**

There is little data demonstrating the impact on health and costs associated with maintaining a minimal level of blockage with neuromuscular blockers (NMB); however, ASA guidelines support the usage of neostigmine for NMB reversal when minimal depth of blockade is detected. Since the FDA approval of sugammadex in 2015, Lima Memorial Health System (LMHS) anesthesia providers have shifted their clinical practice to prefer use of sugammadex over neostigmine. At LMHS, sugammadex is seventeen times more costly than neostigmine, and may be underutilized within the institution. Increasing the incidences of minimal depth blockade during appropriate procedures, and then following ASA guidelines to utilize neostigmine during presence of minimal depth blockade may maintain similar health outcomes compared to sugammadex while saving costs.

**Methods:**

This study is a single site, comparative, interventional study taking place at Lima Memorial Health System. It will compare current practice usage of neuromuscular blockers and reversal agents against clinical practice after intervention of provider awareness of respective pharmaceutical usage. Provider practice will be analyzed prior to intervention, and post intervention. Patients will be identified for review via a report run of all patients with a billing code for neuromuscular blocker reversal agents; sugammadex or neostigmine. The primary outcome for this study is the dosage of NMB administered by anesthesia for patient procedures. Secondary outcomes include each anesthesia providers’ use of NMB reversal agents, time spent in post anesthesia care unit (PACU), time from last NMB dose to first dose of NMB reversal agent, time from first dose of NMB reversal to operating room exit, rate of pulmonary complications including postoperative pneumonia and unanticipated reintubation, cost of NMB agents administered, cost of NMB reversal agents administered, and cost of complications.

**Results:**

Data is currently being collected and analyzed.

**Conclusions:**

Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Impact of Rapid Phenotypic Susceptibility Testing on Time to Optimal Antimicrobial Therapy in Gram-negative Bacteremia.**

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**UAN:** 0048-0000-25-146-L01-P

**Learning Objectives:**

1. Review current literature regarding rapid susceptibility testing in patients with Gram-negative bacteremia.
2. Discuss the clinical impact of implementing a rapid phenotypic susceptibility testing platform in our institution.

**Purpose:**

Gram-negative bacteremia is a major cause of infection-related mortality, with death rates ranging from 12% to 38%. Research shows that delaying optimal therapy can significantly increase mortality and extend length of hospitalization. Prolonged turnaround times of standard blood culture methods often contribute to these delays. Rapid phenotypic susceptibility tests significantly reduce turnaround times and facilitate timely adjustments to therapy. However, studies assessing the effects of these systems on time to optimal therapy and subsequent clinical outcomes remain scarce. This study aims to investigate the impact of a rapid phenotypic susceptibility test on time to optimal therapy in this patient population.

**Methods:**

We conducted a retrospective chart review of patients admitted to Miami Valley Hospital from July 2020 - July 2021 and October 2021 - October 2022 (pre and post implementation of rapid phenotypic susceptibility testing). Patients were included if they were 18 years and older and had a positive blood culture for a Gram-negative bacteria drawn within 48 hours of admission. We excluded patients who entered hospice care, were discharged, or expired before final susceptibility report and patients who had polymicrobial growth on blood cultures. Patients were matched based on ICU admission and pathogen isolated on blood culture. The primary outcome was time to optimal antimicrobial therapy. Secondary outcomes were length of hospital stay, ICU length of stay, in-hospital mortality, and days of antimicrobial use.

**Results:**

A total of 419 bacteremia episodes were reviewed, 178 (pre-implementation) and 241 (post-implementation). 126 patients were included for analysis, 63 in each group. Patient demographics and characteristics were similar between groups. The most common organism identified was *E. coli* (49.2%) and most common source of bacteremia was urinary (37.3%). Median time to optimal antimicrobial therapy was 57.2 hrs. pre-implementation and 40.5 hrs. post – implementation (p = 0.57).

**Conclusion:**

The implementation of a rapid phenotypic susceptibility testing platform did not result in reduced time to optimal antimicrobial therapy in patients with Gram-negative bacteremia. Larger-scale studies are needed to further assess this outcome.

**Comparative Analysis of Fixed Versus Variable Dosing of Regional Citrate Anticoagulation in Critically Ill Patients on Continuous Kidney Replacement Therapy**

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**UAN:** 0048-0000-25-147-L01-P

**Learning Objectives:**

1. Assess the role of citrate anticoagulation in continuous kidney replacement therapy.
2. Evaluate the potential adverse effects associated with citrate anticoagulation.

**Purpose:**

The Kidney Disease Improving Global Outcomes (KDIGO) Clinical Practice Guideline for Acute Kidney Injury 2012 recommends regional citrate anticoagulation during continuous kidney replacement therapy (CKRT) for patients without contraindications to prolong circuit lifespan. To date, no real-world studies have directly compared fixed (FIX) versus variable (VAR) dosing of citrate with CKRT. This study evaluated effectiveness and safety of FIX vs. VAR citrate dosing in critically ill patients receiving CKRT.

**Methods:**

This single-center, retrospective study evaluated adult patients, aged ≥ 18 years, admitted to the ICU between 7/1/2018 – 6/30/2024 who received CKRT with regional citrate anticoagulation ≥ 24 hours. Patients diagnosed with COVID-19 during hospitalization or whose citrate dosing was not consistent with the citrate order were excluded. FIX patients were case-matched to VAR patients based on ICU service, duration of citrate, and age. The primary outcome was the time from citrate initiation to first filter change. Secondary outcomes included occurrences of clinical and order-set concordant hyper- and hypocalcemia, citrate toxicity, bleeding and thrombosis events, and electrolyte imbalances. SPSS was used for analysis with a p-value < 0.05 considered significant.

**Results:**

Of the 442 patients screened, 48 patients (24 FIX, 24 VAR) met inclusion and were similar in age, (58.8±16.7 FIX vs. 58.7±14.7 VAR, years, p=0.98), citrate duration (5.7 [3.4,8.4] FIX vs. 5.8 [3.7, 9.0] VAR, days, p=0.99), ICU service (17% MICU, 83% SICU), and admission diagnosis (37% cardiovascular, 16% respiratory failure). The time from citrate initiation to first CKRT filter change was similar, 1.5 [0.7,3.0] FIX vs. 1.9 [0.5,3.1] VAR, days, p=0.89, and the number of filter changes was similar, 3.0±3.2 FIX vs. 2.5±1.8 VAR, p=0.61. Within the first 7 days of citrate therapy, hypercalcemia was identified in 71% FIX and 75% VAR patients, p=0.36, while hypocalcemia occurred in nearly all patients, 92% FIX and 100% VAR, p=0.48. Bleeding events trended lower with FIX, 33% vs. 50% VAR, p=0.19, despite more frequent use of argatroban in FIX 29% vs. 4% VAR, p = 0.04. Thrombosis events were more common in FIX, 25% vs. 13% VAR, p=0.46. ICU and hospital length of stay (LOS) in surviving patients were similar, 26.7 [10.7, 40.2] FIX vs. 25.7 [18.8, 32.0] VAR, days, p=0.98, and 36.0 [18.5, 58.1] FIX vs. 32.9 [26.1, 49.3] VAR, days, p=0.66, respectfully.

**Conclusions:**

Both fixed and variable citrate dosing strategies showed similar effectiveness and safety in CKRT, with no significant differences in filter lifespan, ICU outcomes, or major adverse events. However, the study may have been underpowered to detect some differences between groups.

**Prevalence of Diabetes Distress in Hospitalized Patients**

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**UAN:** 0048-0000-25-148-L01-P

**Learning Objectives:**

1. Identify the proportion of surveyed patients with diabetes mellitus who experienced little-to-none vs moderate-to-high diabetes distress.
2. Describe the most common domain contributing to diabetes distress and patient characteristics associated with moderate-to-high levels of diabetes distress.
3. Discuss the percentage of patients with prior screening of diabetes distress and the referral rate to the outpatient diabetes management clinic.

**Purpose:**

Diabetes distress (DD) is an emotional response related to the strict daily demands of managing diabetes mellitus (DM). Research has shown that DD negatively affects optimal management, metabolic outcomes, quality of life, and self-care. Prolonged DD can also lead to diabetes burnout from relentless management. Each patient care touchpoint provides an opportunity to screen for this important clinical condition. DD has been primarily studied in the community setting. The purpose of this study was to assess the prevalence of DD in patients admitted to a community hospital.

**Methods:**

This single-center, prospective quality improvement initiative surveyed eligible adult patients with DM using the validated Diabetes Distress Scale. Baseline characteristics were recorded for patients completing the survey. The primary outcome evaluated the proportion of surveyed patients experiencing little-to-none vs moderate-to-high DD. Secondary outcomes included the most common variable contributing to DD and patient characteristics associated with moderate-to-high levels of distress. Additional analyses examined prior screening for DD and the referral rate to the outpatient DM clinic.

**Results:**

A total of 301 patients were surveyed between August 14, 2024 and February 25, 2025. Roughly 66% of patients reported DD levels of little to none, 21% moderate, and 13% high. Emotional burden was the most common domain contributing to moderate-to-high distress levels. Out of 249 patients asked, only 30 patients (12%) had been previously screened for DD. A total of 126 patients (42%) were interested in a referral to the outpatient DM clinic, resulting in 98 new referrals. Further analysis using descriptive statistics with univariate and multivariate methods is ongoing.

**Conclusions:**

Approximately one third of hospitalized patients with DM experienced moderate-to-high DD, yet routine screening was infrequent. This pharmacist-driven intervention effectively identified patients with DD and facilitated referrals to the outpatient DM clinic for further support.

**Comparison of perioperative glycemic control in patients continuing versus temporarily holding glucagon-like peptide-1 receptor agonists or glucose-dependent insulinotropic polypeptide/glucagon-like peptide-1 receptor agonists preoperatively**

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Kristin Brower, PharmD, BCPS; Amy James, PharmD, BC-ADM; Sarah Hill, PharmD, BCPS; Aaron Bagnola, PharmD, BCPS, BCCP

**UAN:** 0048-0000-25-149-L01-P

**Learning Objectives:**

1. Review current professional organization guidelines and background literature for the perioperative management of glucagon-like peptide-1 (GLP-1) receptor agonists or glucose-dependent insulinotropic polypeptide/glucagon-like peptide-1 (GIP/GLP-1) receptor agonists (RA).
2. Describe the clinical impact of continuing versus temporarily holding GLP-1 or GIP/GLP-1 receptor agonists.

**Purpose:**

In June 2023, the American Society of Anesthesiologists (ASA) released a statement recommending that patients on a weekly glucagon-like peptide-1 (GLP-1) or glucose-dependent insulinotropic polypeptide/glucagon-like peptide-1 (GIP/GLP-1) receptor agonist (RA) should hold at least 7 days prior to elective surgery due to concerns for increased risk of regurgitation and pulmonary aspiration of gastric contents while under general anesthesia. In January 2024, The Ohio State University Wexner Medical Center’s institutional guidelines were changed to align with ASA recommendations. The purpose of this study is to evaluate the perioperative impact of temporarily holding versus continuing weekly-dosed GLP-1 or GIP/GLP-1 RAs prior to elective surgeries in patients with type 2 diabetes.

**Methods:**

This is a retrospective single center study evaluating patients before and after the change in institutional guidelines (January 1-May 31, 2022 versus January 1-May 31, 2024). Patients pre- and post-guideline change will be matched based on A1C, duration of GLP-1 or GIP/GLP-1 RA therapy, other diabetic medications prescribed, type and duration of surgery, presence of morbid obesity, and history of gastroparesis and gastrointestinal surgery. The primary outcome is the number of patients with preoperative glycemic control, defined as blood glucose < 180 mg/dL. Secondary outcomes include preoperative administration of insulin to achieve blood glucose < 180 mg/dL, correct perioperative GLP-1 or GIP/GLP-1 RA instructions per institutional guidance, number of insulin administrations intraoperatively, number of surgery cancellations due to hyperglycemia, number of pulmonary complications (aspiration or pneumonia) during admission, number of postoperative surgical site infections, readmission rate for hyperglycemia or surgical site infection within 30 days, and 30-day mortality rate.

**Results:**

Results to be presented at the Ohio Pharmacy Residency Conference.

**Conclusions:**

Conclusions to be presented at the Ohio Pharmacy Residency Conference.

**Timing of VTE prophylaxis initiation after neurosurgical intervention in patients with an isolated TBI**

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Allycia Marie, PharmD

**UAN:** 0048-0000-25-150-L01-P

**Learning Objectives:**

1. Describe the guideline recommendations for pharmacologic venous thromboembolism (VTE) prophylaxis initiation after traumatic brain injury (TBI).
2. Identify risk factors associated with both VTE and hemorrhagic expansion in severe TBI.

**Purpose:**

Patients with TBI are at high risk of developing both VTE and intracranial hemorrhage. Guideline recommendations support use of either unfractionated heparin (UFH) or low molecular weight heparin (LMWH) for VTE prophylaxis. Timing of pharmacologic VTE prophylaxis initiation must be carefully considered based on risk of VTE and bleed expansion. This study’s objective was to evaluate the impact of timing of VTE prophylaxis and pharmacologic agent on incidence of VTE and hemorrhagic expansion in patients with isolated head injury requiring neurosurgical intervention.

**Methods:**

This single center, retrospective study included adult patients presenting with isolated TBI requiring neurosurgical intervention between June 1, 2019 - May 31, 2024. Exclusions were: presentation >72 hours of date of injury, expiration within 72 hours of injury, non-head Abbreviated Injury Score >3, or received therapeutic anticoagulation prior to prophylaxis. Data was collected from electronic health records and Michigan Trauma Quality Improvement Program database. Patients were grouped based on timing of VTE prophylaxis initiation from time of admission: less than 4 days, 4 – 7 days, and > 7 days or never received VTE prophylaxis. The primary outcome was occurrence of VTE. Secondary outcomes included pharmacologic VTE agent and dose used, requirement of an additional neurosurgical intervention, hospital and intensive care unit (ICU) length of stay (LOS), and in-hospital mortality.

**Results:**

Of 29 patients included, 10 patients received VTE prophylaxis < 4 days from admission, 11 patients between days 4 – 7, and 8 patients > 7 days or never received VTE prophylaxis during admission. Median age was 39 years and 79.3% of patients were male. Subdural and subarachnoid hemorrhages were the most common injury (72.4% and 75.9%, respectively). Median Glasgow Coma Scale on arrival was 6. Baseline characteristics were similar between groups. There were no differences in type of injury, injury severity scores, and use of reversal agent. Twenty-five patients received VTE prophylaxis, 21 UFH and 4 LMWH. VTE occurred in 2 patients in the < 4 day group, 3 patients in the 4 – 7 day group, and 0 patients in the > 7 day group (p = 0.387). No significant differences were found in ICU and hospital LOS, requirement of an additional neurosurgical intervention and inpatient mortality.

**Conclusions:**

There was no difference in VTE between patients with isolated TBI requiring neurosurgical intervention who received pharmacologic VTE prophylaxis < 4 days, between 4 – 7 days, and > 7 days from admission. Future randomized studies are needed to further evaluate the impact of timing of VTE prophylaxis and agent selection on these patients.

**Role of Gabapentin on Benzodiazepine Requirements in Severe Alcohol Withdrawal**

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James Winegardner, PharmD; Brittany Choulagh, PharmD Candidate

**UAN:** 0048-0000-25-151-L01-P

**Learning Objectives:**

1. Evaluate the role of gabapentin in severe alcohol withdrawal management.
2. Analyze the impact of gabapentin on benzodiazepine requirements.
3. Assess secondary clinical outcomes in Intensive Care Unit (ICU) patients with severe Alcohol Withdrawal Syndrome (AWS).

**Purpose:**

AWS is a critical condition precipitated by the abrupt cessation or significant reduction of prolonged alcohol consumption. Severe manifestations, including seizures and delirium tremens, necessitate ICU management. Standard treatments, such as benzodiazepines and phenobarbital, are effective but pose considerable risks at high doses, including respiratory depression, excessive sedation, and ICU delirium. Gabapentin, a GABA-modulating agent, has shown promise in reducing benzodiazepine dependence in less severe AWS but remains poorly researched in ICU settings for severe cases. This study evaluates its role as an adjunctive therapy.

**Methods:**

This was a retrospective cohort study conducted at Corewell Health William Beaumont University Hospital (CHWBUH). Data from ICU admissions for patients with an indication of severe AWS between January 1, 2020, and January 1, 2024, were analyzed. Patients were categorized based on administration of gabapentin as an adjunct to standard benzodiazepine therapy. Primary outcomes included cumulative benzodiazepine and phenobarbital dosages. Secondary outcomes included ICU length of stay, intubation rates, and administration of propofol or dexmedetomidine. Statistical analyses were conducted using Chi-square and Mann-Whitney U tests.

**Results:**

Patients in the Gabapentin group required significantly lower median doses of lorazepam compared to the Control group (4.2 mg/day vs 7.5 mg/day, p-value = 0.0024). No statistical difference in phenobarbital usage was noted between the groups (90.9 mg/day vs. 98.6 mg/day, p-value = 0.497). ICU length of stay was similar between the Gabapentin and Control group (3.5 days vs. 3 days, p-value = 0.075), and intubation rates were similar between groups (21.18% vs. 22.35%, p-value = 0.085). No statistical difference in non-benzodiazepine sedative requirement was noted, where in the Gabapentin group, 4.8% of patients required propofol, 33.3% required dexmedetomidine, and 19% required both. Comparatively, in the Control group, 10.7% of patients required propofol, 32.1% required dexmedetomidine, and 9.5% required both (p-value = 0.186).

**Conclusions:**

Gabapentin demonstrates potential as an adjunctive therapy in severe AWS management by reducing high-dose benzodiazepine requirements., specifically lorazepam However, similar ICU length of stay and intubation rates underscore the need for further investigation through prospective randomized trials to validate these findings.

**Impact of Pharmacist Intervention on Percentage of INRs in Range in Patients Who Are Being Managed for Anticoagulation Therapy with Warfarin.**

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**UAN:** 0048-0000-25-152-L01-P

**Learning Objectives:**

1. Compare the percentage of INRs in range in the pharmacist groups versus the other provider’s group.
2. Assess the importance of clinical pharmacists in the setting of anticoagulation therapy
3. Discuss possible limitations that could have prevented optimal outcomes of this study.

**Purpose:**

The realm of clinical pharmacy has vastly expanded over the last decade with pharmacists emerging as a cornerstone in patient care. Clinical pharmacists have evolved, especially in the ambulatory setting as primary care providers on the frontlines assisting with direct patient care. One area where pharmacy has a chance to greatly benefit patient outcomes is managing patients who are using warfarin for anticoagulation. Proper anticoagulation therapy is pivotal in reducing risks such as deep vein thrombosis and pulmonary embolisms.

**Methods:**

This retrospective study will look at pharmacist-managed anticoagulation patients using data from two electronic medical records. The records that will be used are the Holzer Health Systems electronic medical record Athena and Dose-response, which is a warfarin managing software used to manage outpatient warfarin. Pharmacist-managed patients will then be compared to patients who are managed by other providers within the health system. Data will be collected retrospectively from both software programs on patients who used pharmacists to manage their warfarin over the past 2 years. This data will be compared to patients who are not currently enrolled in pharmacy anticoagulation services. Primary outcomes that will be assessed are the percentage of INRs in the therapeutic range as well as INRs that are in the expanded therapeutic range which includes a buffer range of +/- 0.2. Secondary outcomes that will be addressed are INRs over 5, and number of tests done per 3 months.

**Results:**

Data collection in progress

**Conclusion:**

Due to the amount of people within the health system that are on warfarin, there should be a fair sample size obtainable for both categories. Hypothesizing the outcome could prove difficult as all patients interact differently with warfarin.

**Evaluation of Intracranial Hemorrhagic Conversion in Patients Receiving Tenecteplase Versus Alteplase for Acute Ischemic Stroke**

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Sarah Tong PharmD, BCPS, BCCCP, BCEMP; Nicole Horstman, PharmD, BCPS; Eyob Adane Ph.D., RPh, BCPS

**UAN:** 0048-0000-25-153-L01-P

**Learning Objectives:**

1. Describe the role of thrombolytics in the treatment of acute ischemic stroke
2. Discuss the incidence of intracranial hemorrhage and major bleeding adverse events between alteplase and tenecteplase

**Purpose:**

The 2019 American Heart Association Guidelines for the Early Management of Patients with Acute Ischemic Stroke suggest tenecteplase as an alternative treatment option for thrombolytic therapy. Tenecteplase was developed to improve upon the thrombolytic properties of alteplase. The result was a product with more fibrin specificity, increased resistance to plasminogen activator inhibitor-1, and a longer duration of action when compared to alteplase. Due to favorable pharmacokinetics and simplistic administration, tenecteplase is being seen more in clinical practice. While numerous studies have been published regarding the efficacy of tenecteplase, there is little research focusing solely on safety outcomes among thrombolytic therapies. The purpose of this retrospective chart review was to compare the incidence of intracranial hemorrhagic conversion in patients receiving tenecteplase or alteplase for acute ischemic stroke.

**Methods:**

This multi-center, retrospective chart review from August 1, 2020 though July 20, 2024 compared bleeding related adverse events following the administration of either alteplase or tenecteplase at three primary stroke centers. This study was determined to be exempt by the Institutional Review Board. Patients were included if they were 18 years of age or older, diagnosed with acute ischemic stroke, and received either tenecteplase or alteplase for thrombolysis. Patients who were pregnant or received thrombolysis for a diagnosis outside of acute ischemic stroke were excluded. The primary endpoint was the incidence of intracranial hemorrhagic conversion. Secondary endpoints included the incidence of major adverse bleeding events and all-cause in hospital mortality before discharge. Primary and secondary endpoints were analyzed with regard to National Institutes of Health Stroke Scale score at presentation, time of last known well, appropriate timing of antiplatelet and anticoagulant agent reinitiation following thrombolytic administration, and those who received adjunctive mechanical thrombectomy.

**Results:**

Data analysis is ongoing, and results will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Use of Proton Pump Inhibitors for Upper Gastrointestinal Bleeding in Chronically Acid-Suppressed Patients**

Madison Webb, PharmD, PGY1 Resident at Kettering Health Dayton

Elizabeth Jacob, PharmD, BCPS; Alana Muhlenkamp, PharmD; Julia Landis, PharmD, BCPS; Kathleen Patton, PharmD; Ashton VanDyke, PharmD, MSHI, BCPS.

**UAN:** 0048-0000-25-154-L01-P

**Learning Objectives:**

1. Review guideline-recommended treatment options for upper gastrointestinal bleeding
2. Discuss the proposed use of proton pump inhibitors in upper gastrointestinal bleeding
3. Examine the impact of being acid suppressed or acid-suppression naïve at baseline on risk of rebleeding

**Purpose:**

Upper gastrointestinal bleeding (UGIB) is a condition that incurs substantial healthcare costs and causes many hospitalizations. There are multiple treatment recommendations from the American College of Gastroenterology, including the use of a high dose proton pump inhibitor (PPI) after successful endoscopic hemostatic therapy to promote clot formation and stability. In prior studies, patients were excluded if they were on acid-suppressant therapy outpatient. This study evaluates intermittent PPI boluses for UGIB in patients with chronic acid suppression compared to acid-suppression naïve patients.

**Methods:**

A retrospective chart review was conducted within an eight-hospital health system from January 1, 2021, to December 31, 2023. Patients included were adults ≥18 years with evidence of UGIB who received at least one PPI bolus of 80 mg followed by 40mg twice daily during their hospital admission. The intervention group included patients who had an active PPI or Histamine-2 receptor antagonist (H2RA) prescription within the past 30 days while the control group did not. Patients were excluded if they were pregnant, received 4-factor prothrombin complex concentrate (PCC) or vitamin K or tranexamic acid during admission, had a history of kidney failure or on chronic dialysis, evidence of coagulopathy, recent admission for a GI bleed within prior 30 days, or received a PPI continuous infusion during their encounter. The primary outcome is the incidence of continued or rebleeding events within 48 hours after the PPI was started. Secondary outcomes included hospital length of stay, any rebleeding during hospital stay, and in-hospital mortality

**Results:**

A total of 200 patients met inclusion criteria with 121 patients being acid-suppression naïve at baseline and 79 being acid-suppressed at baseline. For the primary outcome, 27.8% of patients experienced rebleeding who were acid suppressed at baseline in comparison to 36.4% of patients who were acid-suppression naïve at baseline (p=0.211). All secondary outcomes show no statically significant difference.

**Conclusions:**

A patient’s acid suppression status at baseline does not result in a statically significant difference in terms of continued or rebleeding events in UGIB within 48 hours of PPI initiation.

**Evaluation of FOLFIRINOX Versus mFOLFIRINOX on Clinical Endpoints in Metastatic Colorectal Adenocarcinoma**

 Annie Weckesser, PharmD, PGY1 Pharmacy Resident at Kettering Health Main Campus

Elizabeth Jacob, PharmD, BCPS; Kathleen Patton, PharmD; Ashton VanDyke, PharmD, MSHI, BCPS; Brendan Rasor, PharmD, BCOP

**UAN:** 0048-0000-25-155-L01-P

**Learning Objectives:**

1. Differentiate between full dose and modified dose FOLFIRINOX chemotherapy regimens.
2. Discuss the rationale for modified dosing of FOLFIRINOX and current guideline recommendations and literature.
3. Evaluate the impact of modified versus full-dose FOLFIRINOX regimens on patient-specific outcomes.

**Purpose:**

Colorectal cancer is a leading cause of cancer-related mortality, with a 13% 5-year survival, and current mainstay chemotherapy options show no significant beneficial outcomes. The chemotherapy regimens, FOLFIRNOX and modified FOLFIRINOX (mFOLFIRINOX), are commonly seen as efficacious treatment options for pancreatic cancer and are more recently used in colorectal adenocarcinoma. FOLFIRINOX has an increased toxicity risk, therefore, modified versions may be beneficial to provide efficacy and tolerability. This study aims to evaluate the efficacy of FOLFIRINOX and mFOLFIRINOX regimens for metastatic colorectal adenocarcinoma.

**Methods:**

A retrospective chart review utilizing data between January 1, 2019, and June 1, 2024, of metastatic colorectal adenocarcinoma patients. Patients were included if they were between the ages of 18-75 years old, had confirmed metastatic colorectal adenocarcinoma, received FOLFIRINOX (including leucovorin, fluorouracil, oxaliplatin, irinotecan) or a modified version, and received treatment at a Kettering Health oncology infusion center. The intervention group included patients who received any modified version of FOLFIRINOX (n=23), while the control group included patients who received standard dose FOLFIRINOX (n=5). The primary outcome is progression-free survival defined as time from treatment initiation to disease progression/death. The secondary outcomes include overall survival defined as duration from treatment initiation to death from any cause, toxicities defined as present or absent, graded according to the Common Terminology Criteria for Adverse Events (CTCAE), and disease-or side effect-related hospitalizations.

**Results:**

For the primary outcome, patients on FOLFIRINOX were found to have 100% PFS while mFOLFIRINOX had 56.5% PFS (p = 0.043). All secondary outcomes (OS, adverse events, and disease/side effect-related hospitalizations) showed no statistical difference.

**Conclusion:**

No statistically significant differences were found between treatment groups for PFS and OS. However, due to this being a retrospective study, no conclusions can confidently be made. Notable confounding factors include the small number of patients in full-dose FOLFIRINOX arm. Additional research is needed to determine if dosing of these regimens impacts survival.

**Impact of Post-Ablation Oral Methylprednisolone on Recurrence of Atrial Fibrillation**

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J. Michael Boyd, PharmD, BCCP, BCPS; Kyndol Craver, PharmD; Rachel Smith PhD, MPH

**UAN:** 0048-0000-25-156-L01-P

**Learning Objectives:**

1. Describe the role of catheter ablation in atrial fibrillation
2. Discuss the role of steroids after atrial fibrillation ablation

**Purpose:**

Early recurrence of atrial fibrillation (AF) during the 3-month period after catheter ablation occurs in more than 30% of patients. Given the role of inflammation in AF recurrence after an ablation, steroids may be of benefit by reducing cellular adhesion molecules needed for inflammatory response. Available data is conflicting and inconclusive regarding the route of administration and steroid dose. This study will evaluate the impact of post- ablation methylprednisolone on AF recurrence and procedural complications including pericarditis and gastrointestinal bleeding.

**Methods:**

Adult patients will be included if they have a history of AF ablation at Ohio State University Medical Center (OSUMC). Exclusions include previous AF ablation and current steroid use for an alternative indication. The Institutional Review Board has approved retrospective data collection including age, gender, weight, body mass index, ethnicity, race, first follow-up with electrophysiology, type and date of ablation, total ablation time and energy delivered during procedure, and antiarrhythmic therapy pre- and post-ablation. The primary outcome seeks to identify the recurrence of clinical AF. Secondary outcomes include occurrence of pericarditis and gastrointestinal bleeding. Based on prior studies, the incidence of AF recurrence is assumed to be 23% in the treatment (steroid) group and 35% in the control group. To obtain a 33% risk reduction, it is estimated that 223 patients will be needed per arm for an alpha of 0.05 to meet a power of 80%.

**Results:**

Data analysis is ongoing, and results will be presented at the 2025 Ohio Pharmacy Resident Conference.

**Conclusions:**

To be presented at the 2025 Ohio Pharmacy Resident Conference.

**Impact of Chronic Care Management on HbA1c Reduction**

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**UAN:** 0048-0000-25-157-L01-P

**Learning Objectives:**

1. Recall the difference in Chronic Care Management (CCM) appointments versus non-CCM appointments.
2. Identify the potential benefits of CCM.
3. Discuss the results of this study and how it can impact chronic disease management.

**Purpose:**

The purpose of this study was to evaluate the impact CCM has on HbA1C reduction in patients with type 2 diabetes. CCM programs allow practitioners to review a patient’s profile on a more frequent basis as a non-face-to-face service. The increased number of appointments for patients enrolled in CCM offer more opportunities to adjust medications and address adherence issues. The goal of this study was to demonstrate the significant impact CCM can have on improving glycemic control in patients with type 2 diabetes in hopes to encourage other clinics within the Lima Memorial Health System (LMHS) to utilize CCM, ultimately improving the health of our patients and our community.

**Methods:**

This study was a single-site, retrospective, observational study design that took place within Lima Memorial Health System’s Comprehensive Health Center between July 1, 2024, and June 30, 2025. The data collected includes characteristics, interventions, and clinical outcomes of patients with type 2 diabetes monitored with a CGM. Patient who met the inclusion/exclusion criteria and were enrolled in this study has the following data collected: age, gender, number of diabetic medications being used, baseline A1C%, change in A1C%, number of non-face-to-face services, number of face-to-face services, total number of services, number of interventions made, adherence score based on the brief medication questionnaire, average time in an acceptable blood glucose range (70-180mg.dL), number of hypoglycemic episodes (blood glucose <70mg/dL), average blood glucose over study period. The primary outcome for this study was an evaluation of percentage of HbA1c reduction in patients enrolled in CCM versus patients that are not enrolled in CCM. Secondary outcomes of this study included medication adherence scores analyzed by a questionnaire, percentage of time in an acceptable blood glucose range as defined by the American Diabetes Association (ADA) as a goal of 70 to 180mg/dL, number of hypoglycemic episodes as defined by the ADA as a blood glucose level less than 70mg/dL, and average blood glucose throughout the duration of the study.

**Results:**

Data collection in progress.

**Conclusions:**

Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

**Linezolid Versus Clindamycin and Vancomycin in Necrotizing Fasciitis**

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**UAN:** 0048-0000-25-158-L01-P

**Learning Objectives:**

1. Describe current guideline recommendations for the treatment of necrotizing fasciitis
2. Review current literature and rationale for linezolid as an option in place of clindamycin and vancomycin

**Purpose:**

Necrotizing fasciitis is a life-threatening skin and soft tissue infection (SSTI) that causes necrosis of muscle fascia and subcutaneous tissue. Empiric antibiotics cover aerobes, including MRSA and *Streptococcus* spp., anaerobes, and suppress exotoxins in the incidence of group A *Streptococcus* (GAS) being a causative pathogen. With current IDSA guidelines recommendations, the common empiric regimen for necrotizing fasciitis includes clindamycin, vancomycin, and piperacillin-tazobactam. However, GAS resistance to clindamycin has been increasing and *Clostridioides difficile* (C. diff) infection is a risk. Studies suggest linezolid may suppress GAS toxins, potentially allowing replacement of both clindamycin and vancomycin in an empiric regimen for necrotizing fasciitis.

**Methods:**

A retrospective chart review evaluated data collected from the medical records of patients who were admitted within an eight-hospital health system from January 1, 2018, through July 31, 2024. Patients eligible for screening and study inclusion were retrieved from a clarity report. Patients were included if they were at least 18 years old, were admitted to a Kettering Health facility, diagnosed with necrotizing fasciitis (including Fournier’s gangrene), received surgical management during admission, received oral and/or IV clindamycin or linezolid for at least 48 hours, and were in ICU or ICU stepdown units. The intervention group included patients receiving linezolid, while the control group was patients who received clindamycin (+/- vancomycin). The primary objective is ICU/ICU stepdown length of stay (LOS) in Kettering Health ICU units. Secondary outcomes include rate of C. diff infections, duration of clindamycin and linezolid as well as total antibiotic exposure in days, time on vasopressors, inpatient mortality, rates of AKI, and presence of a toxin-producer in blood (GAS, *Clostridium perfringens*, *S. aureus*, and Toxic shock syndrome toxin/TSST-1).

**Results:**

A total of 150 patients were included in this study; 121 in the clindamycin group and 29 in the linezolid group. Baseline characteristics were similar between groups except for median age (p=0.035). Median ICU/ICU stepdown LOS was 4.1 days for the clindamycin group and 5.6 days for the linezolid group (p=0.71). There were no statistically significant differences in any secondary outcome.

**Conclusion:**

Because there were no significant differences in outcomes, there may be an opportunity for streamlined empiric therapy with linezolid versus clindamycin plus vancomycin for necrotizing fasciitis.

**Evaluation of Preoperative Antibiotic Administration Times in Emergency Abdominal Surgeries**

Maddisen Wycoff, PharmD – PGY1 Pharmacy Resident at Grant Medical Center

Sara Jordan Hyland, PharmD, BCCCP, FCCP; Lauren Lopez, PharmD, MPH, BCPS; Lauren Wood, PharmD; and Joshua Hill, MD

**UAN:** 0048-0000-25-159-L01-P

**Learning Objectives:**

1. Review current literature detailing proper antibiotic utilization to prevent surgical site infection
2. Discuss current antibiotic administration practice and areas of opportunity for improvement

**Purpose:**

 Prophylactic antibiotics must be administered in sufficient time prior to incision (PTI) to achieve therapeutic tissue concentrations to prevent surgical site infections (SSI). Current guidelines recommend cefotetan or cefazolin plus metronidazole as prophylactic regimens in patients requiring abdominal surgeries. OhioHealth’s institutional formulary regimen changed from cefotetan to cefazolin plus metronidazole in March 2024 to address anaerobic bacterial resistance. This study compares the rate of optimal antibiotic administration PTI between patients who received cefotetan vs. cefazolin plus metronidazole before undergoing emergent abdominal surgery.

**Methods:**

This is a retrospective cohort study approved by the OhioHealth IRB. The study population includes patients ≥16 years of age who received emergency abdominal surgery at OhioHealth’s Grant Medical Center, Riverside Methodist Hospital, or Mansfield Hospital and received either cefotetan or cefazolin plus metronidazole. Patients who died within 24 hours or received antibiotics not included in the study in the perioperative period were excluded. The primary outcome was to compare rates of patients receiving the prophylactic antibiotic regimen within the optimal timeframe PTI, compared between the cefotetan vs. cefazolin plus metronidazole groups. Moreover, secondary clinical and demographic variables were compared between the two groups.

**Results:**

A total of 197 unique patients were included in this study with 98 patients in the cefotetan group and 99 patients in the cefazolin plus metronidazole cohort. When assessing the primary outcome, there was a statistically significant difference with 58 patients (59.18%) in the cefotetan cohort and 31 patients (31.1%) in the cefazolin plus metronidazole cohort receiving antibiotics within the optimal timeframe PTI (p = <0.001). There were 11 patients (5.58%) who encountered a SSI within 60 days of surgery with 3 patients (3.06%) in the cefotetan cohort and 8 patients (8.08%) in the cefazolin plus metronidazole cohort (p = 0.125). Pharmacist interventions were documented in 32 patients (16.24%) with 10 (10.20) in the cefotetan cohort and 22 (22.22) in the cefazolin plus metronidazole cohort (p = 0.022).

**Conclusions:**

A large number of emergency abdominal surgery patients did not receive a prophylactic antibiotic within the recommended timeframe PTI to mitigate SSI risk. Current prophylactic antibiotic selection and administration practices should be reevaluated for patients requiring emergency surgery.

 **Evaluating the Impact of Pharmacy Led Transitions of Care Interventions on Hospital Readmissions**

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**UAN:** 0048-0000-25-160-L04-P

**Learning Objectives:**

1. Review current literature on pharmacist led transitions of care interventions
2. Discuss workflow development and proposal for pharmacist led transitions of care interventions
3. Assess pharmacist led transitions of care intervention impact on hospital readmission rates

**Purpose:**

Health systems are expanding the transitions of care teams to create roles for pharmacists as medication experts. Some responsibilities include medication reconciliation, patient education and counseling, resolving medication access barriers, identifying gaps in care, and coordination of care with primary care providers and other specialists when necessary. Data suggests that utilizing pharmacists in the transitions of care space decreases readmission rates, improves drug therapy plans, as well as increases medication history accuracy.

A previous internal analysis identified readmission population trends within the Value Based Care (VBC) contract Medicare members. Using the information from this analysis, a quality-improvement transitions of care (TOC) intervention was implemented for patients discharging from inpatient status in the health system to receive Pharmacy Population Health pharmacist outreach. This quality improvement project seeks to determine what impact those pharmacist-led TOC interventions has on 90-day readmission rates for the VBC contract Medicare members.

**Methods:**

This is a retrospective review study assessing readmission rates of VBC contract Medicare members before and after the implementation of a clinical service provided by Pharmacy Population Health pharmacists to VBC members after hospitalization.  Data will be collected via Web Intelligence, Epic SlicerDicer, VBC claims reports, and manual chart review for adult patients aged 18 years and older who were discharged from an acute-care Parkview Health facility with inpatient status from September 8, 2024 to January 31, 2025.  Patients were identified for outreach through the pre-existing care coordinator screening tool. Patients who received at least one attempt of pharmacist TOC outreach with a population health pharmacist will be included.  VBC claims reports will be used to identify 30-day and 90-day readmission rates compared to standard of care group.

**Results:**

Results will be presented at OPRC.

**Conclusions:**

Conclusion will be presented at OPRC.

**Real-World Evaluation of Gemcitabine, Cisplatin, and Durvalumab with a Modified Biweekly Schedule Used in the Treatment of Patients with Advanced Biliary Tract Cancer**

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Matthew Arango, PharmD, BCOP; Hiba Alzouby, PharmD, BCOP; Demond Handley; Brett Bushong, PharmD, BCPS, BCOP

**UAN:** 0048-0000-25-161-L01-P

**Learning Objectives:**

1. Describe advanced biliary tract cancer and first line treatment recommendations
2. Evaluate the safety and effectiveness of treatment dependent on dosing schedule
3. Compare the safety and efficacy of modified treatment schedules to current literature

**Purpose:**

Gemcitabine and cisplatin (GemCis) and gemcitabine and cisplatin with durvalumab (GemCisDurva) are approved as first-line treatments for advanced biliary tract cancer (BTC). The standard dosing consists of a 21-day cycle, which often leads to significant toxicities. As a result, our institution implemented a modified 28-day cycle to reduce toxicity and improve tolerability. Our institution has maintained the modified 28-day cycle and incorporated durvalumab into the regimen, on Day 1 of the 28-day cycle. The purpose of this study was to evaluate whether the efficacy of GemCisDurva is maintained when administered on a modified dosing schedule compared to GemCis.

**Methods:**

This was a retrospective cohort study of patients treated for advanced BTC with a modified schedule of GemCis or GemCisDurva between August 1, 2020 to August 1, 2024 at The James Cancer Hospital at The Ohio State University. Adult patients diagnosed with advanced BTC and treated with a modified schedule of GemCis or GemCisDurva were included. Patients were excluded if they were considered a protected population (age less than 18, incarcerated, pregnant), required systemic corticosteroids greater than 10 milligrams per day of prednisone or equivalent, or had a baseline serum creatinine greater than 2 milligrams per deciliter.

**Results:**

Among the 77 patients included in the study, 50 (65%) received GemCisDurva regimen. The median number of doses of gemcitabine and cisplatin was similar between the GemCis (8 doses) and GemCisDurva (9 doses) groups. On a modified dosing schedule, progression-free survival was not statistically significant for GemCisDurva compared to GemCis. However, improved overall survival was seen in GemCisDurva compared to GemCis which aligns with existing data available on the standard dosing schedule. Both GemCis and GemCisDurva had fewer grade ≥3 toxicities compared to available literature with the standard schedule. The overall survival of the GemCisDurva group compared favorably to the TOPAZ-1 trial.

**Conclusions:**

This study aimed to evaluate if efficacy of GemCis is maintained when administered on the modified dosing schedule with the addition of durvalumab in patients with advanced BTC. The results suggest that the modified dosing of GemCisDurva maintained improved survival outcomes compared to GemCis. Overall tolerability was improved with decreased toxicities utilizing a modified dosing schedule of both GemCisDurva and GemCis compared to available literature with the standard schedule.

**Comparison of Anaerobic vs. Non-Anaerobic Antibiotic Coverage in the Treatment of Community-Acquired Aspiration Pneumonia**

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Deanna Urasek, PharmD, BCPS, BCGP – The Jewish Hospital Mercy Health

**UAN:** 0048-0000-25-162-L01-P

**Learning Objectives:**

1. Discuss the key recommendations of the 2019 ATS/IDSA guidelines for the management of community-acquired aspiration pneumonia.
2. Identify antibiotics with anaerobic coverage and their role in community-acquired aspiration pneumonia.

**Purpose:**

Aspiration pneumonia accounts for up to 15% of community-acquired pneumonia cases and carries a high mortality risk. Traditionally, broad-spectrum antibiotics with anaerobic coverage have been used, but recent evidence suggests anaerobes may play a lesser role. This study aims to evaluate whether clinical outcomes differ between patients treated with anaerobic coverage and those treated without it for community-acquired aspiration pneumonia.

**Methods:**

This was a retrospective observational study of patients admitted to The Jewish Hospital – Mercy Health from June 2023 to November 2024 with a diagnosis of community-acquired aspiration associated pneumonia. The primary outcome of this study was to compare in-hospital all-cause mortality rates of patients who received antibiotics with versus without anaerobic coverage. Secondary outcomes included incidence of *Clostridioides difficile*-associated diarrhea, length of hospital stay (in days), ICU length-of-stay (in days), 30-day hospital readmission, and total duration of antibiotic treatment.

**Results:**

Of the 113 patients who were treated for community-acquired aspiration pneumonia, 76 received antibiotics with anaerobic coverage while 37 received antibiotics without anaerobic coverage. In-hospital mortality was 5.3% (6 patients) across both groups, with no significant difference between those receiving anaerobic coverage and those not (6.6% vs 2.7%; *p* = 0.388). The average duration of antibiotic treatment was longer in the anaerobic coverage group (5.8 ± 2.69 days vs. 4.49 ± 2.32 days; *p* = 0.0122). There were no significant differences between the groups for secondary outcomes, including *C. difficile*-associated diarrhea, hospital length of stay, or 30-day readmission. Among the 13 patients with microbiology data, *Haemophilus influenzae* and *Staphylococcus aureus* were the most frequently isolated organisms. Approximately 40% of patients in both groups required ICU level of care during hospitalization.

**Conclusions:**

This study suggests that mortality rates are not significantly impacted by whether patients receive antibiotics with or without anaerobic coverage for community-acquired aspiration pneumonia, in the absence of empyema and/or abscesses. However, patients receiving antibiotics with anaerobic coverage for this indication may be associated with a longer duration of antibiotic therapy compared to those receiving antibiotics without anaerobic coverage.

**Assessing Time to Extubation with Dexmedetomidine vs Propofol in Adult Cardiac Surgery Patients: A Retrospective Cohort Analysis**

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**UAN:** 0048-0000-25-163-L01-P

**Learning Objectives:**

1. Review guideline recommendations on sedation strategies in mechanically ventilated adults
2. Discuss the impact of dexmedetomidine and propofol on clinical outcomes in the context of postoperative open-heart surgery

**Purpose:**

Prolonged mechanical ventilation increases the risk of ventilator-associated complications including ventilator-associated pneumonia and delirium which can lead to extended intensive care unit (ICU) admissions. The Society of Thoracic Surgeons (STS) defines early extubation within 6 hours of post-cardiac surgery as a quality marker. Previous studies have demonstrated shorter time to extubation in the dexmedetomidine-based sedation strategy compared to a propofol-based sedation strategy. The purpose of this study is to evaluate the effects of propofol and dexmedetomidine as primary sedative agents in the time to extubation in adults who underwent open-heart surgery.

**Methods:**

This retrospective cohort study included adult patients who underwent elective or urgent open-heart surgery at Miami Valley Hospital, the area’s largest center for comprehensive heart emergency care and Level 1 trauma center from January 2024 to September 2024. Patients were divided into two groups based on receiving dexmedetomidine or propofol as the primary sedative agent post open-heart surgery. The primary outcome was the average time to extubation between sedation groups. Secondary outcomes included ICU length of stay (LOS) and postoperative intravenous (IV) opioid requirements within the first 24 hours measured in total morphine milligram equivalents (MME).

**Results:**

A total of 168 patients were included in this study. Of that, 93 (55.3%) received propofol, and 75 (44.6%) received dexmedetomidine. Baseline characteristics were similar between groups except for age, gender, weight, and sedation. The average time to extubation was not statistically significant between propofol and dexmedetomidine (5.5 hours IQR 4-7.4 vs. 5.7 hours IQR 3.9-7.9, p=0.715). ICU length of stay and postoperative IV opioid requirements were not statistically significant in the dexmedetomidine group when compared with propofol group (47.3 hours IQR 43.7-69 vs 48.3 hours IQR 44-70.7, p=0.638) and (32 MME IQR 24-56 vs 32 MME IQR 18-50, p=0.333), respectively. There was no difference in the incidence of adverse events between both groups.

**Conclusions:**

This study suggests that utilizing dexmedetomidine as the primary sedative agent did not reduce the time to extubation compared to propofol in the postoperative open-heart surgery setting.

**Navigating Pain Management: Opioids in the Emergency Department**

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**UAN:** 0048-0000-25-164-L08-P

**Learning Objectives:**

1. Describe differences in pharmacokinetics and adverse events for opioids administered via different routes
2. Describe the ordering patterns for opioids in the emergency department (ED)

**Purpose:**

Measure and describe the current standard of practice for opioid utilization and outcomes in the emergency department (ED) at a tertiary medical center.

**Methods:**

A 6-month retrospective review from July 1, 2024 – December 31, 2024 of short-acting opioids administered to patients 18 or older in an ED was performed. Doses given for procedures, cough medications, and opioid infusions as well as patients with no documented pain scores were excluded. Data collected included pain scores; oral morphine equivalents (OMEs) given; number of doses given; objective markers of opioid-related adverse effects (ADEs) such as vitals, oxygen orders, naloxone administration, and Pasero opioid-induced sedation scores; and ED length of stay (LOS). Encounters where patients received only enteral doses (enteral group) were compared to encounters where a patient received any parenteral doses (parenteral group). Data were analyzed with descriptive statistics. A chi-squared analysis was used for categorical data and a 2-tailed, unpaired t-test was used for continuous data with P values < 0.05 considered statistically significant.

**Results:**

Overall, in 3657 encounters where short acting opioids were administered, 4865 doses were given of which 54.8% were parenteral and 45.2% were enteral. The parenteral group received more doses (1.5 vs 1.1, p <.001) as well as more OMEs per dose and per encounter (12.3 vs 7.3, p <.001 and 18.7 vs 8.0, p<0.001). The enteral group had statistically, but not clinically, significantly higher average pain scores during the encounter (7.4 vs 7.2, p = 0.1). The enteral group had a lower incidence of ADEs as well as a shorter ED LOS (4.8 vs 6.3 hours, p <.001).

**Conclusions:**

Opioids were given more frequently via parenteral routes than via enteral routes. Receiving only enteral opioids was associated with fewer adverse effects and a shorter ED LOS compared with receiving parenteral opioids. The enteral group also received lower doses and achieved similar pain scores.