ST. LOUIS COLLEGE *of* PHARMACY

9th Annual St. Louis Area
Pharmacy Resident Research Conference

May 23, 2018

St. Louis College of Pharmacy
Academic Research Building
3rd Floor Classrooms

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1:10 – 1:30 pm	***Megan Chittum, Pharm.D** Dexmedetomidine dose requirements to achieve goal Richmond Agitation-Sedation Scale (RASS) score in obese compared to non-obese intensive care unit (ICU) patients	**Nicole Gramlich, Pharm.D.** Glycemic Control in an Inpatient Diabetic Population: A Comparison of Weight-Based Insulin Dosing vs. Home Regimen vs. Physician Preference	**Nalinoë Kernizan, Pharm.D.** Evaluation of Prescribing Patterns for the Treatment of Bipolar Disorder in Pregnancy	**Amanda Bultas, Pharm.D.** Predictors of Treatment Failure Following De-escalation to a Fluoroquinolone in Culture Negative Nosocomial Pneumonia
1:30 – 1:50 pm	***Haley N. Ilcewicz, Pharm.D.** Evaluation of the Impact of an Inpatient Hyperglycemia Protocol on Glycemic Control	**Sara E. Lingow, Pharm.D.** Clinical Inertia Amongst Healthcare Providers in the Management of Patients with Type 2 Diabetes	**Katie Neighbors, Pharm.D.** Metformin's effect on A1c in prediabetics taking atypical antipsychotics	**Katy Kehl, Pharm.D.** Discontinuation of Mediations in HIV Wasting Syndrome
1:50 – 2:10 pm	***Kaitlen Shumate, Pharm.D.** Evaluating Potential Predictors of Bleeding Events in Patients Taking Direct Oral Anticoagulants	**Danielle Bozzardi, Pharm.D.** Assessment of Risk Factors for Non-Therapeutic Anti-Factor Xa Levels in Patients on Treatment Dose Enoxaparin	**Katie Peppin, Pharm.D.** Evaluating the safety and tolerability of inpatient sacubitril/valsartan initiation in a community hospital	**Xing Tan, Pharm.D.** Efficacy and safety of trimethoprim/sulfamethoxazole versus linezolid for skin and skin structure infections
2:10 – 2:30 pm	***Jennifer Voong, Pharm.D** Evaluation of Vasopressor Discontinuation	**Paige Hagen, Pharm.D.** A Retrospective Review Comparing Team-Based Care to Usual Care for HbA1C Lowering Over 12 Months	**Mara Lacy Hofherr, Pharm.D.** Midodrine use for vasopressor weaning in intensive care patients	**Melissa Gaul, Pharm.D.** Evaluation of Antibiotic Dosing Adjustments and Effect on Clinical Outcomes in Critically Ill Patients with Sepsis at an Academic Medical Center

**Resident Research Award Finalist*

SESSION 1 1:10—1:30 PM

ARB Room 304

Title: Dexmedetomidine dose requirements to achieve goal Richmond Agitation-Sedation Scale (RASS) score in obese compared to non-obese intensive care unit (ICU) patients

Author(s) and Institution(s): **Megan Chittum, Pharm.D.**[1]; Elizabeth Gau, Pharm.D., BCCCP[1]; Nicole Nesselhauf, Pharm.D., BCPS[1] 1. SSM Health Saint Louis University Hospital

Introduction: Dexmedetomidine dosing is based off total body weight; however, a pharmacokinetic study suggests this results in higher serum concentrations in obese versus non-obese patients. This study aims to quantify the dexmedetomidine dose requirements to achieve goal RASS in obese versus non-obese patients.

Methods: This retrospective chart review was conducted at an academic medical center. Patients 18 years and older admitted to the ICU between February 2016 and 2017 with a body mass index (BMI) 18.5 or greater and on dexmedetomidine were included. The primary endpoint was dose of dexmedetomidine required to achieve and maintain RASS goal for 4 hours in obese versus non-obese patients. Secondary endpoints were time to achieve RASS goal and percent of RASS scores below goal in the first 4 and 24 hours of dexmedetomidine therapy. Chi square and ANOVA were used to determine statistical significance.

Results: There were 95 patients identified; 29 met criteria for the primary endpoint. The average maintenance dose between BMI groups did not significantly differ at 0.945mcg/kg/hr, 1 mcg/kg/hr, 0.65 mcg/kg/hr, and 0.825 mcg/kg/hr for the BMI range 18.5-24.9, 25-29.9, 30-34.9, and 35-39.9 range, respectively (p=0.415). Similarly, time to RASS goal and percent RASS scores below goal in the first 4 and 24 hours did not significantly differ between groups, respectively (p=0.322, p=0.258 and p=0.114).

Conclusions: There is not any statistically significant difference in dexmedetomidine dose, time to RASS goal, or percent RASS scores below goal based on patient BMI. Therefore, dexmedetomidine dosing should be based off total body weight.

ARB Room 305

Title: Glycemic Control in an Inpatient Diabetic Population: A Comparison of Weight-Based Insulin Dosing vs. Home Regimen vs. Physician Preference

Author(s) and Institution(s): **Nicole Gramlich, Pharm.D.**[1] Jacklyn Harris, Pharm.D., BCPS[1,2] 1. Christian Hospital; 2. St. Louis

College of Pharmacy

Introduction: Hyperglycemia in the hospital can lead to significant patient harms including longer length of hospital stay, increased risk of ICU admission, increased risk of complications while in the hospital, and increased risk of patient mortality. These negative effects translate to worsened patient outcomes and higher healthcare costs. This study sought out the most effective regimen to control blood glucose in type 2 diabetic patients admitted to Christian Hospital.

Methods: Retrospective chart reviews were conducted on adult patients with type 2 diabetes admitted to Christian Hospital between August 1, 2016 and July 31, 2017. The primary endpoint was the proportion of patients in each group with blood glucose levels between 70-180 mg/dL. Secondary endpoints included incidence of hypoglycemia (blood glucose <70 mg/dL) and severe hyperglycemia (blood glucose > 300mg/dL).

Results: Based upon preliminary data, insulin dosing per physician preference showed a higher proportion of patients maintaining blood glucose levels between 70-180 mg/dL. The data also suggests that the incidence of hypoglycemia was similar between all groups and that severe hyperglycemia occurred most often in the basal-bolus insulin group.

Conclusions: Preliminary data from this project suggests that type 2 diabetic patients prescribed insulin by physician preference maintained more optimal glycemic control while in the hospital compared to patients in the basal-bolus and home regimen groups. Individual data will be available for prescribing physicians to review if desired. Pending final results, education may also be provided to physicians regarding an optimal inpatient insulin regimen for patients with type 2 diabetes.

ARB Room 354

Title: Evaluation of Prescribing Patterns for the Treatment of Bipolar Disorder in Pregnancy

Author(s) and Institution(s): **Nalinoë Kernizan, Pharm.D.**[1,2]; Alicia Forinash, Pharm.D., BCPS, BCACP.[1,2]; Abigail Yancey, Pharm.D., BCPS.[1,2.] 1. St. Louis College of Pharmacy; 2. SSM St. Mary's Hospital

Introduction: Uncontrolled bipolar disorder during pregnancy is associated with poor prenatal care, decreased fetal growth, and increased risk for postnatal complications such as post-partum psychosis. Mood stabilizers are first line therapy to control patients; however, pregnancy data are lacking. Often, antidepressants are initiated based on physician comfort with safety data, but this may increase mania risk. This study aims to evaluate the prescribing patterns for bipolar in obstetric patients.

Methods: This retrospective cohort study included pregnant patients with bipolar referred to the Maternal & Fetal Care Clinic with two documented visits for each pregnancy after January 1, 2014 with delivery by October 30, 2017 within an SSM health-system hospital. The primary outcome was to describe bipolar treatment regimens at first visit, throughout pregnancy, and at delivery. Descriptive statistics were used.

Results: Of the 127 pregnancies analyzed, 36 patients were on psychiatric medications at first visit, including 16 on mood stabilizing regimens, 7 on antidepressants alone, and 4 on benzodiazepines alone. Out of 89 patients with psychiatric medications during pregnancy, 36 were on mood stabilizers. At delivery, 55 patients reported taking psychiatric medications, which included 24 on mood stabilizers and 18 on antidepressants without mood stabilizers. Other therapies included benzodiazepines, buspirone, and dextroamphetamine/amphetamine, as monotherapy or combination.

Conclusions: The number of patients taking mood stabilizing regimens at delivery is less than when prescribed during pregnancy. Several patients on antidepressant based regimens still needed therapy optimized.

ARB Room 355

Title: Predictors of Treatment Failure Following De-escalation to a Fluoroquinolone in Culture Negative Nosocomial Pneumonia

Author(s) and Institution(s): **Amanda Bultas, Pharm,D,**[1]; Amit Bery, MD[2]; Eli Deal, PharmD, BCPS[1]; Aaron Hartmann, PharmD, BCPS[3]; Sara Richter, PharmD, BCPS[3]; William Call, PharmD, BCPS[3].

1. Department of Pharmacy, Barnes-Jewish Hospital; 2. Department of Internal Medicine, Washington University in St. Louis; 3. Department of Pharmacy Practice, St. Louis College of Pharmacy

Introduction: Little evidence exists for de-escalation of nosocomial pneumonia therapy without positive cultures. The purpose of this study was to identify potential predictors of treatment failure following de-escalation to a fluoroquinolone in culture negative nosocomial pneumonia.

Methods: Single-center, retrospective cohort of patients admitted with diagnosis of nosocomial pneumonia and positive chest radiography who received at least 24 hours of fluoroquinolone monotherapy following at least 24 hours of appropriate empiric antibiotics. Treatment failure was defined using a composite of all-cause death within 30 days of discharge, treatment re-escalation, or readmission for pneumonia within 30 days of discharge. Cox proportional hazards model was used to analyze predictors of treatment failure. Duration of empiric antibiotics and significant univariate exploratory predictors were included in multivariate analysis.

Results: Twenty-three (14%) of 164 patients failed de-escalation. Duration of empiric antibiotics (68.5 +/- 32.1 hours vs. 65.8 +/- 35 hours) was not associated with treatment failure in univariate (HR: 1.002 [95% CI 0.991-1.013]) or multivariate analyses (HR: 1.003 [95% CI 0.991-1.015]). Significant exploratory predictors on univariate analysis included active cancer, ICU admission at empiric initiation, APACHE II score, and steroid use ≥20mg prednisone equivalent. ICU admission at empiric initiation (HR: 2.439 [95% CI 1.048-5.676]) and steroid use ≥20mg prednisone equivalent (HR: 2.946 [95% CI 1.281-6.772])

were associated with treatment failure on multivariate analysis.
Conclusions: Duration of empiric antibiotics does not appear to influence failure of de-escalation to fluoroquinolone monotherapy in culture negative nosocomial pneumonia. Impact of exploratory predictors on treatment failure should be assessed in further studies.

SESSION 1 1:30—1:50 PM

ARB Room 304

Title: Evaluation of the Impact of an Inpatient Hyperglycemia Protocol on Glycemic Control
Author(s) and Institution(s): **Haley N. Ilcewicz, Pharm.D.**[1,2]; Erin K. Hennessey, Pharm.D., BCPS[1,2]; Carmen B. Smith, Pharm.D., BCPS[1,2] 1. Mercy Hospital St. Louis; 2. St. Louis College of Pharmacy
Introduction: Inpatient hyperglycemia is associated with poor outcomes. Existing research assessing inpatient hyperglycemia protocols has produced inconsistent results. The purpose of this study was to evaluate the impact of an inpatient hyperglycemia protocol on glycemic control.
Methods: This retrospective cohort study included adult patients in non-critical care units requiring insulin administration for glycemic control. Two cohorts, a pre-protocol implementation and a post-protocol group, were compared. The primary outcome was the incidence of blood glucose values within 70-180 mg/dL over a 72-hour period between groups. Key secondary outcomes included the incidence of hypoglycemia (less than 70 mg/dL), severe hyperglycemia (above 300 mg/dL), and other patient-related outcomes.
Results: Two-hundred sixty-eight patients were included (pre-protocol, n=134; post-protocol, n=134). There was no difference in the primary outcome between pre-protocol and post-protocol groups (55.35% vs. 56.79%; p=0.4). Results of the primary outcome stratified by type 2 diabetes mellitus demonstrated better glycemic control in the post-protocol group (49.46% vs. 55.47%; p<0.001). Compared to the pre-protocol group, the post-protocol group had lower incidence of hypoglycemia (3.23% vs. 1.68%; p=0.004), less total insulin administered per patient (94.6 units vs. 56.1 units; p<0.001), and shorter length of stay (121 hours vs. 95 hours; p=0.029). Rates of hyperglycemia and severe hyperglycemia did not differ between groups.
Conclusions: The implementation of an inpatient hyperglycemia protocol was associated with lower rates of hypoglycemia and total insulin use but did not significantly impact overall glycemic control. Interpretation of the results is limited by small sample size and warrants larger studies for further evaluation.

ARB Room 305

Title: Clinical Inertia Amongst Healthcare Providers in the Management of Patients with Type 2 Diabetes
Author(s) and Institution(s): **Sara E. Lingow, Pharm.D.**[1,2]; Justinne Guyton, Pharm.D., BCACP[1,2] 1. St. Louis College of Pharmacy 2. Saint Louis County Department of Public Health
Introduction: Clinical inertia is the lack of treatment intensification in patients who are not at evidence-based treatment goals, and is a major factor leading to suboptimal patient care. Contributing reasons include provider, patient, and system-wide aspects. This study evaluated clinical inertia in diabetes management between healthcare providers.
Methods: A single-center, cross-sectional, retrospective study compared two cohorts of adult patients with type 2 diabetes and A1c > 8% in 2016. Diabetes care was provided by the clinical pharmacy team in the intervention group and by the primary care provider in the control group. The primary outcome evaluates the difference in treatment intensification between groups, either with non-insulin or insulin therapy, within four months following the first elevated A1c.
Results: A total of 276 eligible patients were included for final analysis, 72 patients in the intervention group and 204 in the control group. Overall, 79% of patients in the intervention group compared to 49% in the control group received treatment intensification (p<0.001.) Forty percent of patients in the intervention group versus 32% in the control group had non-insulin therapy increased (p=0.19), and 54% of patients in the intervention group versus 19% in the control group had an increase in total-daily insulin dose (p<0.001).
Conclusions: Treatment intensification was more common for those in the intervention group than the control group. Future studies evaluating patients long-term would be beneficial to determine sustained benefit and impact on clinical outcomes. This study demonstrates the advantage of clinical pharmacist involvement in diabetes care management, particularly regarding intensification of insulin therapy.

ARB Room 354

Title: Metformin's effect on A1c in prediabetics taking atypical antipsychotics
Author(s) and Institution(s): **Katie Neighbors[1], Pharm.D.**; Travis Linneman, Pharm.D., BCPS[1]; VA St. Louis Health Care System
Introduction: The risk of developing diabetes can be compounded by medications, including antipsychotics. Antipsychotics are associated with a metabolic syndrome and have been demonstrated to potentially lead to weight gain, dyslipidemia, and elevated plasma glucose. This study aims to evaluate if metformin has an effect on the rate of diabetes development in prediabetic patients taking antipsychotics.
Methods: This retrospective study was conducted at a single VA health care system. Patients were included if they were

prediabetic and received an atypical antipsychotic (olanzapine, clozapine, quetiapine) between 01/01/2007 and 04/01/2017. The study compared two groups, those taking atypical antipsychotics and metformin therapy and those taking atypical antipsychotics but not on metformin therapy. The primary outcome assessed overall change in hemoglobin A1c. Secondary outcomes include overall change in glycemic status, using either fasting glucose or A1c.
Results: TBD.
Conclusions: Prediabetics, especially those taking atypical antipsychotics, are at an increased risk of developing diabetes. These results are intended to evaluate if metformin demonstrates an effect in rate of development of diabetes in this patient population.

ARB Room 355

Title: Discontinuation of Mediations in HIV Wasting Syndrome
Author(s) and Institution(s): **Katy Kehl**[1,2], Lauren Karpman[2], Nicole Gibson[2], Kristen Badger[2], Steven Fuchs[2], Brigid Elam[2], Patricia Dunn[2], Nicole M. Gattas[1];1. St. Louis College of Pharmacy, St. Louis, Missouri; 2. Schnucks Markets Inc., St. Louis, Missouri.
Introduction: HIV wasting syndrome impacts functional ability, weight, capacity to fight opportunistic infections, and quality of life. The three approved options have varied effectiveness and adverse drug events (ADEs). This study compared rates of ADEs, addition of antidiabetic medications, change in weight from baseline, and explored reasons for discontinuation for the two most common HIV wasting medications, dronabinol and somatropin.
Methods: This retrospective study compared a cohort of patients from three physician practices that discontinued dronabinol or somatropin after 30 days to a control group that remained on the medications for ≥ 12 months, between January 1, 2015 through December 31, 2017.. Chart reviews identified changes in pertinent labs, addition of new diabetes diagnosis or medications, and time of and reasons for discontinuation of the medication.
Results: Of the 76 patients included in the control (n=45) and study groups (n=31), 14% (n=2 control, n=9 study) had an ADE during therapy, with joint pain being the most common. Patients in the study group discontinued due to ADEs (n=6), insurance limitations (n=6) and cost (n=4). Few patients (n=6) added new diabetes medications (n=4 control, n=2 study). The average weight gain from baseline to 3 – 6 month follow up was 1.06 and 1.41 pounds in the control and study groups respectively (p=0.377). ADEs in patients taking dronabinol and somatropin may lead to discontinuation of therapy and lack of weight gain. Pharmacists can proactively educate and monitor for ADEs and insurance issues to assist in continuation of therapy.

SESSION 1 1:50—2:10 PM

ARB Room 304

Title: Evaluating Potential Predictors of Bleeding Events in Patients Taking Direct Oral Anticoagulants
Author(s) and Institution(s): **Kaitlen Shumate, Pharm.D.**[1,2]; Travis Linneman, Pharm.D., BCPS[1,2]; Jeffrey Jansen, Pharm.D.[1]; Clare Freund, Pharm.D.[1]; 1. VA Saint Louis Health Care System; 2. Saint Louis College of Pharmacy
Introduction: The major safety concern while receiving direct oral anticoagulants (DOAC) is hemorrhage. Bleeding risk schemas exist but are validated in warfarin only. This study aims to determine risk factors associated with an increased risk of bleeding while taking DOACs.
Methods: This retrospective case-control analysis was conducted at a single VA health care system. Patients with an active outpatient order of apixaban, rivaroxaban, or dabigatran for at least 90 days, plus documented bleed compiled the case cohort. A 1:4 case-control ratio was utilized to randomly select the control cohort from remaining identified DOAC recipients. Univariate analysis and logistic regression were used to identify predictors significantly associated with bleeding events.
Results: Fifty patients with bleeding events met inclusion criteria. Overall, the bleed rate was 5.9%. An initial chi-square of potential predictors indicates differences in characteristics amongst the cohorts (reported as bleed vs no bleed): history of prior bleed (40% vs 16%; p<0.001), liver disease (18% vs 5%; p=0.002), anemia (54% vs 32.5%; p=0.005), history of stroke (30% vs 15%; p=0.014), and concomitant antiplatelet use (18% vs 7.5%; p=0.025). Univariate analysis and logistic regression are ongoing.
Conclusions: Univariate analysis and logistic regression are ongoing. The results of this analysis may aid in identification of factors associated with higher bleeding rates in patients receiving DOACs.

ARB Room 305

Title: Assessment of Risk Factors for Non-Therapeutic Anti-Factor Xa Levels in Patients on Treatment Dose Enoxaparin
Author(s) and Institution(s): **Danielle Bozzardi, Pharm.D.**[1]; Allison Clemons, Pharm.D., BCPS[1]; Elizabeth Nothdurft, Pharm.D., BCPS[1]; 1. St. Luke's Hospital- St. Louis
Introduction: Anti-factor Xa (anti-Xa) levels may be utilized to monitor patients on enoxaparin. There is limited clinical guidance available regarding which patients may most benefit from anti-Xa level monitoring. The purpose of this study was to evaluate potential risk factors associated with non-therapeutic anti-Xa levels for patients on enoxaparin.
Methods: This was a single-center retrospective cohort study of patients who received therapeutic enoxaparin at a

community hospital between May 2012 and February 2018. Adult patients with a steady state, peak anti-Xa level drawn were included. Anti-Xa levels were classified as subtherapeutic, therapeutic, or supratherapeutic based on the institution's pre-defined goal range of 0.6-1.0 U/mL. The primary outcome was the assessment of pre-defined risk factor correlation with anti-Xa level classification. Secondary outcomes included bleed and clotting event rates, rate of appropriately drawn levels, and dose adjustments made based on anti-Xa level results.
Results: Of 733 anti-Xa levels identified, 102 met criteria for analysis. Of those, most were supratherapeutic (49.0%), followed by therapeutic (39.2%), then subtherapeutic (11.8%). There were no statistically significant differences in risk factors observed among patients with non-therapeutic versus therapeutic anti-Xa levels. The supratherapeutic anti-Xa group had higher rates of bleed, which was not statistically significant. Approximately 50% of anti-Xa levels ordered to monitor enoxaparin were timed or drawn inappropriately.
Conclusions: This study was unable to confirm risk factors for non-therapeutic anti-Xa levels in patients on treatment dose enoxaparin. Approximately half of the levels were inappropriately drawn, suggesting an area for education in the future.

ARB Room 354

Title: Evaluating the safety and tolerability of inpatient sacubitril/valsartan initiation in a community hospital
Author(s) and Institution(s): **Katie Peppin, Pharm.D.**[1]; Katie Tellor, Pharm.D, BCPS[1,2]; Anastasia Armbruster, Pharm.D, BCPS[1,2]; Martin Schwarze, D.O.[1] 1. Missouri Baptist Medical Center; 2. St. Louis College of Pharmacy
Introduction: The 2017 ACC/AHA/HFSA heart failure (HF) guidelines recommend sacubitril/valsartan in place of an angiotensin-converting-enzyme inhibitor or angiotensin receptor blocker to reduce the risk of cardiovascular death and hospitalization in patients with NYHA class II-IV HF with reduced ejection fraction (HFrEF).
Methods: This single-center, retrospective study evaluated patients ≥ 18 years with HFrEF initiated on sacubitril/valsartan ≥ 24 hours from August 2015 through March 2018 at a community hospital. Women of childbearing age, pregnant or nursing were excluded. The primary outcome is the incidence of inpatient hypotensive events. Additional objectives include: inpatient acute kidney injury (AKI), hyperkalemia and discontinuation, HF 30 day readmission, change in outpatient diuretic dose, ejection fraction (EF) within 30 days before and after sacubitril/valsartan initiation, and sacubitril/valsartan dose at 6 months.
Results: Overall, 21 (35.6%) of the 59 patients experienced a hypotensive event. A total of 6 patients (10.2%) discontinued therapy while inpatient, which was more likely in patients that developed AKI (n=3; p=0.005) or those who experienced a hypotensive event (n=5; p=0.018). Other causes of discontinuation included cost-related issues (n=3). There was a significant difference in mean EF from baseline to ≥ 30 days post-initiation (24.8% vs. 33.2%; p=0.018).
Conclusions: Discontinuation rates of sacubitril/valsartan was low, with hypotension, AKI, and cost as the main contributors. Patients discharged on sacubitril/valsartan were found to have a significant improvement in mean EF. These results can help prescribers be mindful of the common ADRs that may lead to drug discontinuation while inpatient and the benefits of continued therapy.

ARB Room 355

Title: Efficacy and safety of trimethoprim/sulfamethoxazole versus linezolid for skin and skin structure infections
Authors and Institutions: **Xing Tan, Pharm.D.**[1,2]; Travis W. Linneman[1,2]; Ryan P. Moenster[1,2]; 1. VA St. Louis Health Care System; 2. St. Louis College of Pharmacy
Introduction: The comparative efficacies of linezolid (LZD) and trimethoprim-sulfamethoxazole (TMP-SMX) for the treatment of acute bacterial skin and skin structure infections (ABSSSI) have not been evaluated.
Methods: This study evaluated patients admitted to the VA St. Louis for treatment of an ABSSSI between 04/18/2000 and 10/16/2017 and discharged with a prescription for ≥5 days of LZD or TMP-SMX. The primary outcome was clinical failure, defined as a composite of an Emergency Department visit, clinic visit, or inpatient admission for ABSSSI, extension or change of antibiotic regimen for any reason, or the presence of an adverse reaction occurring in the 14 days after completion of the outpatient regimen.
Results: Fifty-one patients treated with LZD and 138 with TMP-SMX were included in this study. Length of stay was greater in the LZD group (5.99 days vs. 3.55 days [P=0.006]), as was antibiotic use during hospitalization (98% [50/51] vs. 86% [119/138]; P=0.017). The mean day supply of antibiotic at discharge was 10.12 for LZD group and 9.62 for TMP-SMX group (P=0.48). Twenty-two percent (11/51) of patients treated with LZD and 15% (21/138) of those treated with TMP-SMX (P=0.301) experienced clinical failure. Positive MRSA nasal colonization and receipt of antibiotics for 24-48 hours during hospitalization met criteria for inclusion in the multivariate analysis, but were not significantly associated with clinical failure (1.64 [95% CI 0.72-3.74]; P=0.235 and 0.44 [95% CI 0.15-1.36]; P=0.155, respectively).
Conclusions: There was no difference in the rate of clinical failure between patients treated with LZD or TMP-SMX for ABSSSI.

SESSION 1 2:10—2:30 PM

ARB Room 304

Title: Evaluation of Vasopressor Discontinuation

Author(s) and Institution(s): **Jennifer Voong, Pharm.D.**[1,2]; Matthew J. Korobey, Pharm.D., BCCCP[2]
1. St. Louis College of Pharmacy; 2. Mercy Hospital St. Louis

Introduction: Recommendations for the discontinuation order of vasopressors are limited. Previous data suggests that discontinuing vasopressin (AVP) before norepinephrine (NE) may result in clinically relevant hypotension. The purpose of this study was to evaluate whether the order that NE and AVP are discontinued in septic shock patients will affect the incidence of clinically significant hypotension.

Methods: This retrospective chart review included critically ill adult patients who received both NE and AVP for septic shock. The primary outcome was clinically significant hypotension within 24 hours of discontinuing the first vasopressor. Clinically significant hypotension was defined as a mean arterial pressure less than 60 mmHg with one of the following: 1) Increase in dose of the remaining agent; 2) Reinitiating the discontinued agent; 3) Receipt of at least 500 mL of a crystalloid or 25 g of 5% albumin. Secondary outcomes were intensive care unit (ICU) and hospital lengths of stay (LOS) and ICU and hospital mortality. Student's t-test was used for continuous data and chi-square was used for dichotomous data.

Results: One-hundred twenty-nine patients were analyzed (AVP discontinued first n=66). There was a greater incidence of clinically significant hypotension when AVP was discontinued first vs. NE discontinued first (43.9% vs. 6.3%, p<0.00001). There was no difference in ICU (11.3 vs. 9.3 days, p=0.20) or hospital LOS (20.4 vs. 16.7 days, p=0.10), nor ICU (18.2% vs. 22.2%, p=0.57) or hospital mortality (19.7% vs. 31.7%, p=0.12).

Conclusions: Discontinuation of AVP before NE in septic shock patients was associated with a higher incidence of clinically significant hypotension.

ARB Room 305

Title: A Retrospective Review Comparing Team-Based Care to Usual Care for HbA1C Lowering Over 12 Months

Author(s) and Institution(s): **Paige Hagen, Pharm.D.**[1]; Christopher Carter, Pharm.D., BCCCP[1]; Lauren Odum, Pharm.D., BCPS[1].
1. SSM Health St. Clare Hospital, Fenton, MO

Introduction: Value-based care has placed increased emphasis on HbA1c <8% as a quality measure in patients with diabetes mellitus. As a result, a pharmacist-driven diabetes collaborative practice agreement was created at our institution. This study sought to gauge the impact of pharmacist intervention on attainment of HbA1c <8%.

Methods: We conducted a retrospective review of patients with HbA1c of ≥8% between June 1, 2016- June 1, 2017 at our institution's family medicine clinic. Patients were assigned to the team-based care group if they had at least three contacts with the pharmacist during the study period. All other patients were assigned to the usual care group. The primary endpoint was the percentage of patients achieving HbA1c <8% within 12 months. Secondary endpoints included median time to HbA1c <8% in days and the prevalence of hospitalizations/ED visits for hyper- or hypoglycemia.

Results: More patients in the team-based care group (n=46) achieved HbA1c <8% within 12 months than in the usual care group (n=151) (82.6% vs 62.3%; p=0.010). Patients in the team-based care group also reached HbA1c <8% more quickly (91 vs 141 days; p=0.011). No difference in hospitalization/ED visits for hyper- or hypoglycemia was found (p=NS). Multivariate logistic regression confirmed that team-based care group assignment was a positive predictor of reaching HbA1c <8% (p<0.001).

Conclusions: Team-based care with a pharmacist making regular dose changes to diabetes regimens can improve quality measures and patient care through timely reduction of HbA1c.

ARB Room 354

Title: Midodrine use for vasopressor weaning in intensive care patients

Author(s) and Institution(s): **Mara Lacy Hofherr, Pharm.D.**[1]; Jacklyn Harris, Pharm.D, BCPS.[1,2]; Christine Riat[1] 1. Christian Hospital; 2. St. Louis College of Pharmacy

Introduction: Vasopressors are used in about 25% of ICU admissions and are dangerous vesicants with a poor adverse event profile. Midodrine is a potential adjunctive agent for the treatment of hypotension in critical care patients. Midodrine is approved for symptomatic hypotension and is being frequently used for vasopressor discontinuation, even though current literature is lacking.

Methods: This single-center, retrospective, observational study examined patients who required vasopressors who received midodrine compared to a similar group of patients who did not receive midodrine. Patients who are on vasopressors and midodrine at consistent doses for at least 24 hours were included in this trial. The primary outcome was magnitude of change in IV vasopressor rate. Secondary outcomes included time on IV vasopressors, change in mean arterial pressure (MAP) during IV vasopressor administration, percentage of patients reinitiated on vasopressors, ICU and hospital length of stay (LOS).

Results: Of the 218 patients who received both midodrine and vasopressors, 106 were included. The primary outcome of change in IV vasopressor rate was 0.209 vs 0.147 (0.95% CI -0.062; [p = 0.004]). The secondary outcome that investigated

the time on IV vasopressors was higher in the midodrine group, with 9.4 days vs. 5.6 days (0.95 CI -3.82; [p < 0.0001]). No statistically significant differences were seen in the change in MAP, number of reinitiated vasopressor use, ICU and hospital LOS.
Conclusions: Patients who were administered midodrine had a decrease in vasopressor rate at 24 hours after administration, however received vasopressors two days longer than patients without midodrine administration.

ARB Room 355

Title: Evaluation of Antibiotic Dosing Adjustments and Effect on Clinical Outcomes in Critically Ill Patients with Sepsis at an Academic Medical Center

Author(s) and Institution(s): **Melissa Gaul, Pharm.D.**[1]; Robert Sbertoli, Pharm.D., BCCCP[1]; Stacy Revelle, Pharm.D., BCPS[1]. 1. SSM Health Saint Louis University Hospital Department of Pharmacy Services

Introduction: Sepsis is a significant cause of morbidity and mortality worldwide. While adequate antimicrobial therapy is the mainstay of treatment, dosing in sepsis-related renal failure is a largely unexplored concept. The objective of this study was to evaluate patient outcomes by comparing immediate and delayed (24 to 48 hours) antibiotic dosing adjustments for renal function following admission to the intensive care unit (ICU).
Methods: Patients aged 18-89 admitted to the ICU from the emergency department with a diagnosis of sepsis were included in this retrospective cohort analysis. Patients with a history of chronic kidney disease were excluded. Other exclusion criteria included: alterations in antibiotic regimens or receipt of renal replacement therapy within 48 hours of admission, or pregnancy. The primary outcome was change in SOFA score at 48 hours. Secondary outcomes included in-hospital mortality, ICU length of stay, hospital length of stay, ventilator days, and adverse drug events.
Results: This study included 36 patients, 29 receiving immediate dose adjustments and 7 receiving delayed dose adjustments. Baseline characteristics were well-matched between groups, with the exception of a higher baseline creatinine in the immediate dose adjustment group. Change in SOFA score at 48 hours was +1.03 in the immediate dose adjustment group compared to -1.29 in the delayed adjustment group (p = 0.180). There were no differences in secondary outcomes.
Conclusions: These results are hypothesis generating, and add to the theory that antibiotic dosing adjustments should be delayed in the initial stages of sepsis to prevent poor outcomes from inadequate sepsis treatment.

SESSION 2				
	ARB Room 304	ARB Room 305	ARB Room 354	ARB Room 355
2:40 – 3:00 pm	**Michael Serlin, Pharm.D.** Impact of Pharmacist Interventions on COPD-Related Quality of Life	**Meredith Voss, Pharm.D.** Effectiveness of a Pharmacist-driven Monitoring Program for Patients Using Continuous Glucose Monitors	**Fadumo Mire, Pharm.D** Implementation of audiology screenings in pediatric cystic fibrosis patients at risk of aminoglycoside or vancomycin-induced ototoxicity	**Mikayla A. Muzzey, Pharm.D.** Evaluation of the effectiveness of flecainide at maintaining symptomatic control in patients with atrial fibrillation
3:00 – 3:20pm	**Bianca Daisy, Pharm.D.** IPPE or APPE? Community Pharmacy Preceptor Perceptions of Where to Incorporate Specific Rotation Activities	**Yasmine Zeid, Pharm.D.** Evaluation of choice of second therapy phase antiepileptic drug and resolution of status epilepticus	**Hannah Terry, Pharm.D.** Comparison of Effect of Long-Acting Naltrexone vs. Oral Naltrexone Use on Alcohol Detoxification Readmission Rates	**Taylor Hebenstreit, Pharm.D.** Comparison of Aspirin vs. Warfarin for Venous Thromboembolism (VTE) Prophylaxis after Orthopedic Surgery
3:20 – 3:40 pm	**Della Mitchell, Pharm.D** Pharmacy Practice in Ambulatory Care	**Lindsay M. Schroeder, Pharm.D.** Hospital-onset seizures: epidemiology, management, and outcomes	**Jeffrey Pasucal, Pharm.D.** Pharmacist Involvement in Oncology Based Patient Reported Side Effects in Community-Based Specialty Pharmacies	**Nicole Phillips, Pharm.D.** Evaluation of Enoxaparin Dosing for Pediatric Venous Thromboembolism: A Retrospective Review
3:40 – 4:00 pm	**Kacie Kuehn, Pharm.D.** Characterizing Pharmacy Resident Perceptions of a Chief Resident Position	**Shelby E. Meyers, Pharm.D.** Evaluation of full-dose anticoagulation in chronic liver disease	**Kaci Kehrt, Pharm.D.** Characterizing Prescribing Practices of Opioids in the Emergency Department at the VA St. Louis Health Care System John Cochran Division	**Melissa J. Nicholson, Pharm.D.** Safety and efficacy of adjusted-dose venous thromboembolism prophylaxis in morbidly obese patients

SESSION 2 2:40—3:00 PM

ARB Room 304

Title: Impact of Pharmacist Interventions on COPD-Related Quality of Life

Author(s) and Institution(s): **Michael Serlin, Pharm.D.**[1]; Christopher Carter, Pharm.D., BCCCP[1]; Lauren Odum, Pharm.D., BCPS[1]; 1. SSM Health St. Clare Hospital

Introduction: COPD has an increasingly negative impact on quality of life and has been a focus of the CMS Readmissions Reduction Program. The few studies that have examined pharmacists' impact on COPD care within a multidisciplinary model have shown mixed results. The objective of this study is to determine whether adding pharmacists to usual care results in improved COPD symptoms.

Methods: This ongoing prospective, randomized, controlled trial is being conducted in a suburban family medicine clinic. Patients with COPD classified as group B, C, or D were randomized to either the usual care group or the team-based care group in which a pharmacist met with the patient for a focused COPD visit prior to their physician appointment. The primary outcome is a change in the COPD Assessment Test™ (CAT™) score, a quality of life scale, within one month. Secondary outcomes include differences in exacerbation rates and percent of patients on guideline-driven therapy after study completion.

Results: The current results demonstrate a CAT™ score change of -3.29 for the team-based group (n=28) vs. -2.94 for the usual care group (n=33; p=0.796). There has been one exacerbation in each group (p=1). Guideline-driven therapy is present in 81.6% of team-based care patients vs. 75% of usual care patients. (p=0.535).

Conclusions: No difference has been found between change in COPD-related quality of life scores, exacerbation rates, or guideline-driven therapy use with a multidisciplinary team vs. usual care. The study is limited by its small sample size with eventual expected enrollment of 110 patients.

ARB Room 305

Title: Effectiveness of a Pharmacist-driven Monitoring Program for Patients Using Continuous Glucose Monitors

Author(s) and Institution(s): **Meredith Voss**[1,2], Lauren Karpman[2], Patricia Dunn[2], Kristen Badger[2], Brigid Elam[2], Steven Fuchs[2], Nicole M. Gattas[1], 1. Saint Louis College of Pharmacy, Saint Louis, Missouri, 2. Schnucks Specialty Pharmacy, Saint Louis, Missouri

Introduction: While the use of continuous glucose monitors (CGM) in patients with diabetes has increased, long term adherence is low. The objective of this study is to assess the effectiveness of a newly implemented pharmacist-driven patient monitoring program for a CGM dispensed from a regional chain community pharmacy.

Methods: This quasi-experimental study retrospectively analyzed two groups using a CGM. The control group included patients that received a CGM prior to initiation of the new monitoring program and the intervention group consisted of patients in the monitoring program. The intervention group received three additional monitoring calls over four months. Calls

assessed satisfaction, identified device-related problems, and assessed ongoing education and refill needs. Data analysis of the primary endpoint was conducted using the T-test.
Results: 100 patients were included in data analysis with 50 in the control group and 50 in the intervention group. Overall, 44% patients discontinued in the control group and 38% in the intervention group (p=0.56) For the intervention group, 70% of patients responded to the first call, 41% to the second call, and 9.6% to the third call. The average sensors fills was 3.12 for the control group and 3.29 for the intervention group. The average transmitter fills was 1.64 for the control group and 1.63 in the intervention group.
Conclusions: The monitoring program did not increase the number of transmitter or sensor fills, or increase use of the CGM. However, patients in the intervention group expressed appreciation for the reminder calls and ability to discuss their experiences.

ARB Room 354

Title: Implementation of audiology screenings in pediatric cystic fibrosis patients at risk of aminoglycoside or vancomycin-induced ototoxicity
Author(s) and Institution(s): **Fadumo Mire, Pharm.D.**1; Lisa Lubsch, Pharm.D., BCPPS, AE-C1
SSM Health Cardinal Glennon Children's Hospital, Saint Louis, Missouri
Introduction: The use of aminoglycosides and vancomycin carries a risk of hearing loss. Currently there is no protocol outlining appropriate hearing screening methods or frequency of screenings. To ensure safe practices, this study will investigate if implementation of an audiology screening protocol will have an impact in recognizing the risk of ototoxicity and preventing clinically significant hearing loss.
Methods: This single-center retrospective quality improvement study evaluated the lifetime charts of pediatric CF patients less than 18 years of age receiving at least a 7-day course of amikacin, tobramycin or vancomycin therapy. An audiology screening protocol was implemented on December 1st, 2017. The primary endpoint of this study was to determine whether patients who received amikacin, tobramycin or vancomycin had an audiology-screening test performed. Secondary endpoints included ENT (ears, nose, and throat) physician referral per screening protocol, evaluating abnormal screenings, and analyzing the risk factors for ototoxicity.
Results: Of the 118 patients identified, 45 (38%) met the inclusion criteria and of these, approximately 35 (78%) failed to have an audiology screening test performed. For demographics, 27 (60%) were homozygous and 18 (40%) heterozygous for the F508-del mutation. Approximately 25 (56%) were male and the median age was 12 years (IQR, 9-15). Upon implementation of the audiology protocol, 8 (23%) additional patients have been screened.
Conclusions: Implementation of an audiology screening protocol helped identify ototoxicity early in one patient. Routine surveillance is vital to improve the quality of life of cystic fibrosis patients and prevent long-term morbidity.

ARB Room 355

Title: Evaluation of the effectiveness of flecainide at maintaining symptomatic control in patients with atrial fibrillation
Author(s) and Institution(s): **Mikayla A. Muzzey, Pharm.D., MBA**[1]; Katie B. Tellor, Pharm.D., BCPS[1,2]; Anastasia L. Armbruster, Pharm.D., BCPS[1,2]; Karthik Ramaswamy, MD[1]; Martin Schwarze, DO[1] 1. Missouri Baptist Medical Center; 2. St. Louis College of Pharmacy
Introduction: The 2014 AHA/ACC/HRS atrial fibrillation (AF) guidelines recommend flecainide as a first line rhythm control option in patients without significant structural heart disease. While there is proven efficacy in clinical trials and guideline support, it is hypothesized that flecainide may be underutilized due to negative outcomes in the CAST trial and that adverse events are less common than previously perceived.
Methods: This retrospective chart review evaluated patients > 18 years initiated on flecainide for AF August 2011 to October 2016 by a BJC-MG Cardiology Group provider. Exclusion criteria included: < 5 days of flecainide therapy, AF due to a reversible cause, and inadequate documentation. The primary outcome was efficacy of flecainide at maintaining symptomatic control at 6 and 12 months. Secondary outcomes included characterization of alterations in rhythm control strategies and documented normal sinus rhythm per ECG at 6 and 12 months.
Results: Of the 326 patients identified, 144 patients were included. After 6 and 12 months, 102 patients (70.8%) and 89 patients (61.8%) of the 144, were symptomatically controlled. Atenolol use (p=0.024), previous propafenone (p=0.038) or dronedarone (p=0.012) failure, and female gender (p=0.006) were associated with flecainide discontinuation at 6 months. At 12 months, only previous propafenone failure (p=0.032) remained significant. Of the 144 patients, 16 (11.1%) reported adverse events with dizziness (1.4%) and headache (1.4%) being the most common.
Conclusions: Flecainide symptomatically controlled a majority of patients for 12 months with limited adverse events. These results further support the utility of flecainide in guideline recommended patient populations.

SESSION 2 3:00—3:20 PM

ARB Room 304

Title: IPPE or APPE? Community Pharmacy Preceptor Perceptions of Where to Incorporate Specific Rotation Activities

Author(s) and Institution(s): **Bianca Daisy, Pharm.D.**[1,2]; Tripp Logan, Pharm.D. [2]; Richard Logan, Pharm.D. [2]; Eric Rolwing, Pharm.D. [2]; Jennifer Steinberg Pharm.D., BCPS[3]; Stacey Maravent, Pharm.D. [3]; Nicole M. Gattas, Pharm.D., BCPS, FAPhA[1]; 1. St. Louis College of Pharmacy; 2. L&S Pharmacy; 3. Nova Southeastern University

Introduction: As pharmacy is everchanging, it's vital that pharmacy education, including IPPE/APPE activities remain current. The survey was designed to assess trends among IPPE and APPE sites, and to determine preceptors' perceptions on when specific activities should be emphasized within rotation experiences. Listed activities were selected after reviewing accreditation standards, rotation guidelines, and community pharmacy policies and procedures. These references provide guidance for knowledge and skills needed to ensure graduates are practice ready, but do not list when a specific activity should be emphasized.

Methods: Preceptors from two colleges of pharmacy were emailed two notifications to complete the online survey. Community pharmacy preceptors who currently precept IPPE and/or APPE students and have precepted ≥ 1 student were invited to participate.

Results: 120/541 surveys were completed. 80% of participants precepted both IPPE/APPE, and 53% had ≥ 6 years of experience. Preceptors chose where each activity fit best: IPPE, APPE, elsewhere in the curriculum, or not emphasized. Activities that > 50% of participants believed should be emphasized during IPPEs include: conducting pseudoephedrine sales, clarifying prescriptions, pharmacy calculations, returning medications, inputting insurance information, and gathering patient information. Activities that > 70% of participants believed should be emphasized during APPEs include: performing transitions of care, patient counseling, interpreting point-of-care testing, performing verification processes, evaluating for self-care, performing guided interventions, recommending therapy change, and conducting comprehensive medication reviews.

Conclusions: When updating a curriculum, this survey may serve as an additional guide to identify IPPE/APPE activities. Results may also assist in the development of specific delineation between rotation types.

ARB Room 305

Title: Evaluation of choice of second therapy phase anti-epileptic drug and resolution of status epilepticus

Author(s) and Institution(s): **Yasmine Zeid, Pharm.D.**[1,2]; Erin K. Hennessey, Pharm.D., BCPS[1,2]; Matthew J. Korobey, Pharm.D., BCCCP[2]. 1. St. Louis College of Pharmacy; 2. Mercy Hospital St. Louis

Introduction: The treatment algorithm for status epilepticus (SE) recommends levetiracetam, valproic acid, or fosphenytoin as second therapy phase treatment, with no preference assigned to any one agent. The purpose of this study was to evaluate the incidence of SE resolution when using levetiracetam or fosphenytoin as second therapy phase agents.

Methods: This was a retrospective cohort study at a 1200-bed teaching hospital. Patients who received one dose of levetiracetam or fosphenytoin following benzodiazepine treatment for SE were included. The primary outcome was the incidence of SE resolution after one dose of levetiracetam or fosphenytoin. Secondary outcomes included mortality during hospital admission, hospital length of stay (LOS), 30-day readmission for SE, and dose appropriateness. Chi-square was used to evaluate categorical data and student's t-test was used to evaluate continuous data.

Results: One-hundred twelve patients were included; 72 in the levetiracetam group and 40 in the fosphenytoin group. Incidence of SE resolution was similar between levetiracetam and fosphenytoin groups (68.1% vs. 72.5%; p=0.62). Mortality during admission, hospital LOS, and 30-day readmission for SE also did not differ between groups. The incidence of dose appropriateness was significantly higher in the fosphenytoin group (0% vs. 40%; p<0.001).

Conclusions: SE resolution was not associated with choice of second therapy phase agent. Larger, prospective studies are needed to better evaluate differences in patient outcomes. The dosing of second therapy phase agents for SE at this institution may need to be evaluated to ensure appropriate treatment.

ARB Room 354

Title: Comparison of Effect of Long-Acting Naltrexone vs. Oral Naltrexone Use on Alcohol Detoxification Readmission Rates

Author(s) and Institution(s): **Hannah Terry, Pharm.D.**[1,2]; 1st Travis Linneman, Pharm.D., BCPS[1,2]; Robert Connell, Pharm.D., BCPS, BCPP [1,2]; 1. VA St. Louis Health Care System; 2. St. Louis College of Pharmacy

Introduction: Alcohol use disorder (AUD) is an often relapsing illness frequently leading to hospital readmissions and increased healthcare spending. Naltrexone, both in oral (PO) and long-acting injectable (INJ) formulations, is approved for treatment of AUD. This study aims to compare these two formulations in terms of readmission for AUD.

Methods: This pilot, retrospective cohort study included VA St. Louis Health Care System patients discharged from the Substance Abuse Residential Rehabilitation Treatment Program (SARRTP) *with* a prescription for naltrexone (oral or injectable) for AUD between January 1, 2013 and April 30, 2017. The primary endpoint of rate of AUD related readmission within one year between the two formulations will be analyzed using a Chi-square test. Secondary endpoints include emergency room visits and readmission rates at 30, 90, and 180 days.

Results: TBD

Conclusions: TBD

ARB Room 355

Title: Comparison of Aspirin vs. Warfarin for Venous Thromboembolism (VTE) Prophylaxis after Orthopedic Surgery

Author(s) and Institution(s): **Taylor Hebenstreit, Pharm.D.**[1]; Crystal Hoffmann, Pharm.D., BCPS, CACP[1]; Ryan Medas, Pharm.D., BCPS[1]. 1. St. Luke's Hospital – St. Louis

Introduction: The 2012 CHEST guidelines recommend several agents for pharmacologic prophylaxis in orthopedic surgery patients, including aspirin. This study aims to determine the efficacy and safety of aspirin versus warfarin for VTE prevention in low-risk patients after total hip arthroplasty (THA) or total knee arthroplasty (TKA).

Methods: This single-center, retrospective study was conducted on 200 adult patients who underwent a THA or TKA between 1/1/16 and 8/31/17, and were discharged on either warfarin (INR goal 1.8-3.0) or aspirin 325mg BID for VTE prophylaxis. Patients with history of deep vein thrombosis (DVT), pulmonary embolism (PE), or GI bleed were excluded. The primary efficacy outcome was rate of DVT and PE. The primary safety outcome was major bleeding events. Data was collected until 6 weeks post-operation. The study's design and methods were approved by the hospital's Institutional Review Board.

Results: There were no reported DVTs or PEs in either treatment group. However, there were five major bleeding events in the warfarin group, with none seen in the aspirin group (P=0.0235). Two patients in the aspirin group and four patients in the warfarin group received blood transfusions (P=0.6827). The mean hospital stay was significantly shorter in the aspirin group (2.1 vs. 2.62 days, P<0.0001).

Conclusions: There were no reported DVTs or PEs in either treatment group. However, there were significantly more major bleeding events in the warfarin group. Patients discharged on aspirin had significantly shorter hospital stays. Suggestions for future studies include investigating other aspirin regimens, and analyzing aspirin use in high-risk patients.

SESSION 2 3:20—3:40 PM

ARB Room 304

Title: Pharmacy Practice in Ambulatory Care

Author(s) and Institution(s): **Della Mitchell, Pharm.D.**; Lynn Eschenbacher PharmD, MBA, FASHP; 1. *Ascension*

Introduction: Pharmacists' roles have expanded over time to include more direct patient care, such as ambulatory care disease management. The aim of this study was to develop a best practice toolkit help implement pharmacy services in ambulatory care across Ascension.

Methods: This retrospective review was conducted at Ascension, the largest nonprofit health system in the United States, utilizing a Therapeutic Affinity Group to approve and implement healthcare initiatives. A Decision Team was formed to include various clinical experts throughout the health system. The team collected pharmacy service outcomes data from various ambulatory care sites throughout the health-system and identified evidence-based literature to support recommendations of the toolkit.

Results: Pharmacy services in ambulatory care demonstrated several benefits including 7.3% reduction in inpatient readmissions, 10.4% reduction in emergency room readmissions, 3% average drop in HbA1c of diabetic patients, 85% of patients achieved therapeutic INR , 24% of identified adherence issues in diabetic therapy, increased patient population growth in ambulatory care, and increased medication management interventions. As a result of this assessment and evidence-based literature, the Therapeutic Affinity Group approved the toolkit to serves as a guide for ministries to establish pharmacy services in ambulatory care towards best practices.

Conclusions: The Therapeutic Affinity Group process for identifying areas of improvement and creating effective, value-driven initiatives resulted in the establishment of a best practice toolkit. Medication management conducted by pharmacists in ambulatory care settings has been shown to improve medication adherence, clinical outcomes for patients with chronic diseases, and cost savings.

ARB Room 305

Title: Hospital-onset seizures: epidemiology, management, and outcomes

Author(s) and Institution(s): **Lindsay M. Schroeder, Pharm.D.**[1], James Braun, PharmD, BCCCP[1], Emily Welch, PharmD, BCPS[1], Abhay Kumar, MD[1], 1. SSM Health Saint Louis University Hospital, St. Louis, Missouri

Introduction: Precipitating factors for hospital-onset seizure (HOS) are variable and literature describing HOS remains limited. The purpose of this retrospective study was to describe HOS epidemiology, clinical characteristics, and treatment utilization patterns.

Methods: Patients ≥18 years old were identified for review by diagnosis codes for seizure and epilepsy, excluding patients with an admitting diagnosis of seizure.

Results: HOS were identified in 50 patients; 22 (44%) patients were located in the intensive care unit (ICU) and 28 (56%) patients were non-ICU. History of seizure (HxS) was more prevalent in non-ICU than ICU (71.4% vs 27.3%, p=0.061); New-onset seizure (NoS) developed in 29 (58%) patients. The most common seizure type was generalized tonic-clonic (48%); Electrolyte/metabolic abnormalities (22%) and inadequate antiepileptic drug (AED) dosing (22%) were the most common etiologies. Management of HOS with AED was variable; Twenty-five patients (50%) received a benzodiaze-

pine; Lorazepam was most frequently chosen. Single-episode HOS occurred in 31 (62%) patients while 19 (38%) patients had recurrence. Disposition home (46.4% vs 18.2%) and AED (60.7% vs 27.3%) upon discharge were more likely in non-ICU than ICU patients; Levetiracetam and phenytoin were most prescribed. Death during hospitalization occurred more in ICU patients and in those with NoS.
Conclusion: Observation of epidemiology and seizure characterization revealed a greater incidence in those with higher acuity of illness, inadequate AED dosing, and electrolyte/metabolic abnormalities. AED management varied and death was greater in ICU and NoS. Further evaluation of trends in epidemiology is warranted to reduce the incidence of provoked seizures and ultimately reduce associated morbidity and mortality.

ARB Room 354

Title: Pharmacist Involvement in Oncology Based Patient Reported Side Effects in Community-Based Specialty Pharmacies
Author(s) and Institution(s): **Jeffrey Pasucal, Pharm.D.**[1,2]; Michelle Jeon, Pharm.D.[1, 2]; Lauren Koval, Pharm.D., AAHIVP[1]; Daron Smith, B.S.Pharm., AAHIVP[1]; Andrew Brand, Pharm.D.[1]; Kellye Holtgrave, B.S.Pharm.[1]; Nicole Gattas, Pharm.D., BCPS, FAPhA[2]
1. Walgreens Pharmacy; 2. St. Louis College of Pharmacy
Introduction: Community-based specialty pharmacies provide local personalized care to help patients manage complex disease states and increase access to high-cost specialty medications. Patients counseled on potential side effects (SE) and prevention/management strategies of oncolytic medications are more likely to complete therapy and have an enhanced quality of life. However, the role of community pharmacists in SE management of specialty medications has not been studied. The purpose of this project is to characterize patient reported SEs and related interventions for oral oncolytic medications in community-based specialty pharmacies.
Methods: This retrospective, multisite, descriptive study analyzed patient reported SEs from community-based specialty pharmacies that are part of a nationwide community pharmacy chain. Patients who filled an oncolytic medication between February 1, 2017 and January 31, 2018 for an approved indication by the FDA and reported a side effect to a pharmacist met inclusion criteria. Reported SEs were mapped to the National Cancer Institute's (NCI) Common Terminology Criteria for Adverse Events. The intervention recommended by the NCI were also mapped.
Results: Of the 3,652 reported SEs during the defined time, 428 met inclusion criteria; spanning 19 types of cancers and 28 medications. Of the included reports, 312 were ≤ Grade 2 (No or noninvasive intervention indicated) with nausea/vomiting/diarrhea, rash and hand-foot syndrome most commonly noted. Of the recorded interventions (n = 146), side effect counseling was most prominent (n = 103).
Conclusions: A majority of SE reports that pharmacists received were ≤ Grade 2. Those practicing in this setting should assure they understand how to identify and address these SEs, helping patients complete therapy and improve their quality of life.

ARB Room 355

Title: Evaluation of Enoxaparin Dosing for Pediatric Venous Thromboembolism: A Retrospective Review
Authors and Institutions: **Nicole Phillips, Pharm.D.**[1]; Kyle Mays, Pharm.D. BCPPS.[1]; Shadi Al-Jureidini, Pharm.D. BCPPS[1]; 1. SSM Health Cardinal Glennon Children's Hospital
Introduction: The incidence of VTE has increased in hospitalized pediatric patients over the years and enoxaparin has become the pediatric drug of choice. The ACCP guidelines have recommendations for enoxaparin dosing extrapolated from adult data, however multiple studies have demonstrated the need for increased initial enoxaparin dosing. This study aims to evaluate initial enoxaparin dosing for pediatric VTE compared to higher dosing reported in the literature.
Methods: This retrospective review was conducted at a tertiary children's hospital in St. Louis, MO. Patients less than 18 years of age who received subcutaneous enoxaparin for documented VTE were included. Patients were then categorized into 6 groups based on their age: premature neonates, full-term neonates, 1-2 months, 3-12 months, 1-5 years and 6-17 years. The primary outcome was the initial enoxaparin dose compared to the therapeutic enoxaparin dose. Secondary outcomes included mean time to therapeutic Anti-Xa levels and mean percentage dose increase between dose adjustments.
Results: 250 patients were identified and 59 met inclusion criteria. Of the six age groups, those patients in the premature neonates, 1-5 years and 6-17 years received initial doses less than the recommended doses demonstrated by previous studies ($p < 0.05$ for all). The median therapeutic dose for all groups was similar to alternative initial dosing reported in the literature.
Conclusions: Pediatric patients at SSM Health Cardinal Glennon Children's Hospital require higher initial enoxaparin dosing to achieve therapeutic Anti-Xa levels. The implementation of a pharmacy driven protocol would be beneficial to ensure appropriate initial enoxaparin dosing and monitoring of Anti-Xa levels.

SESSION 2 3:40—4:00 PM

ARB Room 304

Title: Characterizing Pharmacy Resident Perceptions of a Chief Resident Position

Author(s) and Institution(s): **Kacie Kuehn, Pharm.D.**[1]; Justinne Guyton, Pharm.D., BCACP[1] 1. St. Louis College of Pharmacy

Introduction: The American Society of Health-System Pharmacists (ASHP) requires competency in leadership and management for post-graduate pharmacy residents. There is a gap in current literature on resident perceptions of a pharmacy chief resident (CR) position. The objective of this study is to determine the perceived value of a CR among pharmacy residents.

Methods: In this cross-sectional study, residency program directors of ASHP-accredited programs were e-mailed an anonymous, 15-question online survey and asked to forward to their residents. Questions collected demographic information, perception of leadership opportunities within programs, and CR perceived value. Responses were analyzed to identify characteristics associated with higher perceived value in having or being the CR.

Results: A total of 573 respondents, 65% PGY1 residents and 35% PGY2 residents, participated in the survey. The majority of participants (84.39%) had heard of a CR, 54.35% of participants' programs had a CR and 17.59% of participants were the CR. Overall, 55.85% of responders perceived value in having a CR and 61.54% perceived value in being a CR. Residents that are a CR, those in programs that have a CR, and those that had heard of a CR position were significantly more likely to perceive value in having and being the CR.

Conclusions: Although offering CR positions is variable, most residents perceive value in both having and being a CR. These data suggest employing a CR role is a beneficial leadership opportunity for pharmacy residency programs.

ARB Room 305

Title: Evaluation of full-dose anticoagulation in chronic liver disease

Author(s) and Institution(s): **Shelby E. Meyers, Pharm.D.**[1,2]; Carmen B. Smith, Pharm.D, BCPS.[1,2]; 1. Mercy Hospital St. Louis; 2. St. Louis College of Pharmacy

Introduction: Patients with chronic liver disease (CLD) are at risk of both venous thromboembolism (VTE) and bleeding events. Consequently, anticoagulation remains clinically controversial. The safety of pharmacologic prophylaxis has been previously demonstrated in this patient population, but limited data is available regarding full-dose anticoagulation. The objective of this study was to evaluate the safety of full-dose anticoagulation in patients with CLD.

Methods: This retrospective study included adult patients with CLD who received at least one full-dose of anticoagulation for VTE treatment in the hospital. The primary outcome was incidence of major bleeding. Key secondary outcomes were incidence of any bleeding and readmission for a bleed within three months. Descriptive statistics were used for all outcomes.

Results: A total of twenty-eight patients were included. The majority were Child-Pugh A or B (78.6%) with median baseline platelets of 156,000/mm^3 and an average international normalized ratio of 1.4. Enoxaparin was the most commonly used anticoagulant followed by warfarin (40.7% and 29.6%, respectively). The incidence of major bleeding was 7.1% (2/28). Major bleeding resulted in the discontinuation of full-dose anticoagulation in one of the two patients. The incidence of any bleeding was 14.3% (4/28) and readmission for a bleed within 3 months was 21.4% (6/28).

Conclusions: Full-dose anticoagulation for VTE treatment in patients with CLD does not suggest an association with increased bleed risk despite the inherent risk of bleeding in this patient population.
Larger studies are needed to provide additional safety data.

ARB Room 354

Title: Characterizing Prescribing Practices of Opioids in the Emergency Department at the VA St. Louis Health Care System John Cochran Division

Author(s) and Institution(s): **Kaci Kehrt, Pharm.D.**[1,2]; David Jansen, Pharm.D., BCPS, BCACP[1]; Brian Scholfield, Pharm.D., BCPS[1]. 1. VA Saint Louis Health Care System; 2. Saint Louis College of Pharmacy

Introduction: Emergency Department (ED) physicians are positioned at the center of the opioid epidemic with approximately 42% of all ED visits being pain-related. Although ED physicians primarily prescribe opioids for acute pain conditions, the potential consequences of short-term use remain severe. The aim of this medication use evaluation was to characterize opioid prescribing practices in the ED at the VA St. Louis Health Care System (HCS) John Cochran Division.

Methods: This was a retrospective analysis of adult patients prescribed an opioid from the VA St. Louis HCS ED between 09/01/2017 and 03/31/2018. Participants were stratified based on time and day opioid prescription was ordered. Criteria for evaluation included opioid indication; opioid dose, quantity, and duration of therapy; prior opioid prescription use; and utilization of Prescription Drug Monitoring Program (PDMP) report.

Results: To be determined.

Conclusions: To be determined.

ARB Room 355

Title: Safety and efficacy of adjusted-dose venous thromboembolism prophylaxis in morbidly obese patients

Author(s) and Institution(s): **Melissa J. Nicholson, Pharm.D.**,[1] 1st Julia Alexander, Pharm.D., BCPS[1] Joseph S. Van Tuyl, Pharm.D., BCPS[1] (1. SSM Health Saint Louis University Hospital)

Introduction: Morbid obesity increases the risk venous thromboembolism (VTE) in hospitalized patients. Guidelines fail to address dosing considerations and altered pharmacokinetics of anticoagulants in this population. The goal of this study is to review the safety and efficacy of adjusted-dose VTE prophylaxis in morbidly obese patients.

Methods: This was a retrospective chart review of adult morbidly obese patients who received an order for unfractionated heparin (UFH) or enoxaparin for VTE prophylaxis during September 2015. Patients were divided into two groups based on their VTE prophylaxis dose: adjusted-dose group and a standard-dose group of VTE prophylaxis. The primary outcome was incidence of VTE during hospitalization. Secondary outcomes included clinically relevant bleeding or surgical bleeding.

Results: 166 patients were included in the final analysis. VTE occurred in 37.5 % of the adjusted-dose group and 4.4 % of the standard-dose group (p = 0.008). Bleeding events occurred in 12.5% versus 9.5 (p =0.681), respectively. In a post-hoc analysis comparing standard-dose patients in different BMI groups, patients with a BMI less than 40 kg/m^2 had more bleeding events than patients with a BMI greater than or equal to 40 kg/m^2.

Conclusions: In morbidly obese patients, VTE and bleeding events occurred more frequently in the adjusted-dose group. These patients had recent trauma or surgery and longer hospital stays. VTE and bleeding events were low in non-trauma and non-surgical patients.

SESSION 1				
	ARB Room 304	ARB Room 305	ARB Room 354	ARB Room 355
1:10 – 1:30 pm	***Megan Chittum, Pharm.D** Dexmedetomidine dose requirements to achieve goal Richmond Agitation-Sedation Scale (RASS) score in obese compared to non-obese intensive care unit (ICU) patients	**Nicole Gramlich, Pharm.D.** Glycemic Control in an Inpatient Diabetic Population: A Comparison of Weight-Based Insulin Dosing vs. Home Regimen vs. Physician Preference	**Nalinoë Kernizan, Pharm.D.** Evaluation of Prescribing Patterns for the Treatment of Bipolar Disorder in Pregnancy	**Amanda Bultas, Pharm.D.** Predictors of Treatment Failure Following De-escalation to a Fluoroquinolone in Culture Negative Nosocomial Pneumonia
1:30 – 1:50 pm	***Haley N. Ilcewicz, Pharm.D.** Evaluation of the Impact of an Inpatient Hyperglycemia Protocol on Glycemic Control	**Sara E. Lingow, Pharm.D.** Clinical Inertia Amongst Healthcare Providers in the Management of Patients with Type 2 Diabetes	**Katie Neighbors, Pharm.D.** Metformin's effect on A1c in prediabetics taking atypical antipsychotics	**Katy Kehl, Pharm.D.** Discontinuation of Mediations in HIV Wasting Syndrome
1:50 – 2:10 pm	***Kaitlen Shumate, Pharm.D.** Evaluating Potential Predictors of Bleeding Events in Patients Taking Direct Oral Anticoagulants	**Danielle Bozzardi, Pharm.D.** Assessment of Risk Factors for Non-Therapeutic Anti-Factor Xa Levels in Patients on Treatment Dose Enoxaparin	**Katie Peppin, Pharm.D.** Evaluating the safety and tolerability of inpatient sacubitril/valsartan initiation in a community hospital	**Xing Tan, Pharm.D.** Efficacy and safety of trimethoprim/sulfamethoxazole versus linezolid for skin and skin structure infections
2:10 – 2:30 pm	***Jennifer Voong, Pharm.D** Evaluation of Vasopressor Discontinuation	**Paige Hagen, Pharm.D.** A Retrospective Review Comparing Team-Based Care to Usual Care for HbA1C Lowering Over 12 Months	**Mara Lacy Hofherr, Pharm.D.** Midodrine use for vasopressor weaning in intensive care patients	**Melissa Gaul, Pharm.D.** Evaluation of Antibiotic Dosing Adjustments and Effect on Clinical Outcomes in Critically Ill Patients with Sepsis at an Academic Medical Center
Break				
SESSION 2				
2:40 – 3:00 pm	**Michael Serlin, Pharm.D.** Impact of Pharmacist Interventions on COPD-Related Quality of Life	**Meredith Voss, Pharm.D.** Effectiveness of a Pharmacist-driven Monitoring Program for Patients Using Continuous Glucose Monitors	**Fadumo Mire, Pharm.D** Implementation of audiology screenings in pediatric cystic fibrosis patients at risk of aminoglycoside or vancomycin-induced ototoxicity	**Mikayla A. Muzzey, Pharm.D.** Evaluation of the effectiveness of flecainide at maintaining symptomatic control in patients with atrial fibrillation
3:00 – 3:20pm	**Bianca Daisy, Pharm.D.** IPPE or APPE? Community Pharmacy Preceptor Perceptions of Where to Incorporate Specific Rotation Activities	**Yasmine Zeid, Pharm.D.** Evaluation of choice of second therapy phase anti-epileptic drug and resolution of status epilepticus	**Hannah Terry, Pharm.D.** Comparison of Effect of Long-Acting Naltrexone vs. Oral Naltrexone Use on Alcohol Detoxification Readmission Rates	**Taylor Hebenstreit, Pharm.D.** Comparison of Aspirin vs. Warfarin for Venous Thromboembolism (VTE) Prophylaxis after Orthopedic Surgery
3:20 – 3:40 pm	**Della Mitchell, Pharm.D** Pharmacy Practice in Ambulatory Care	**Lindsay M. Schroeder, Pharm.D.** Hospital-onset seizures: epidemiology, management, and outcomes	**Jeffrey Pasucal, Pharm.D.** Pharmacist Involvement in Oncology Based Patient Reported Side Effects in Community-Based Specialty Pharmacies	**Nicole Phillips, Pharm.D.** Evaluation of Enoxaparin Dosing for Pediatric Venous Thromboembolism: A Retrospective Review
3:40 – 4:00 pm	**Kacie Kuehn, Pharm.D.** Characterizing Pharmacy Resident Perceptions of a Chief Resident Position	**Shelby E. Meyers, Pharm.D.** Evaluation of full-dose anticoagulation in chronic liver disease	**Kaci Kehrt, Pharm.D.** Characterizing Prescribing Practices of Opioids in the Emergency Department at the VA St. Louis Health Care System John Cochran Division	**Melissa J. Nicholson, Pharm.D.** Safety and efficacy of adjusted-dose venous thromboembolism prophylaxis in morbidly obese patients

**Finalist for Resident Research Award*